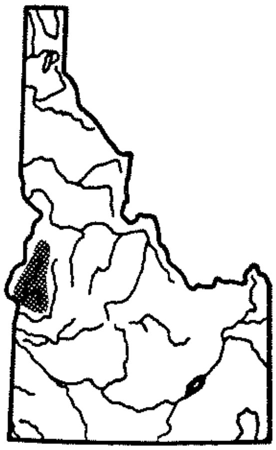
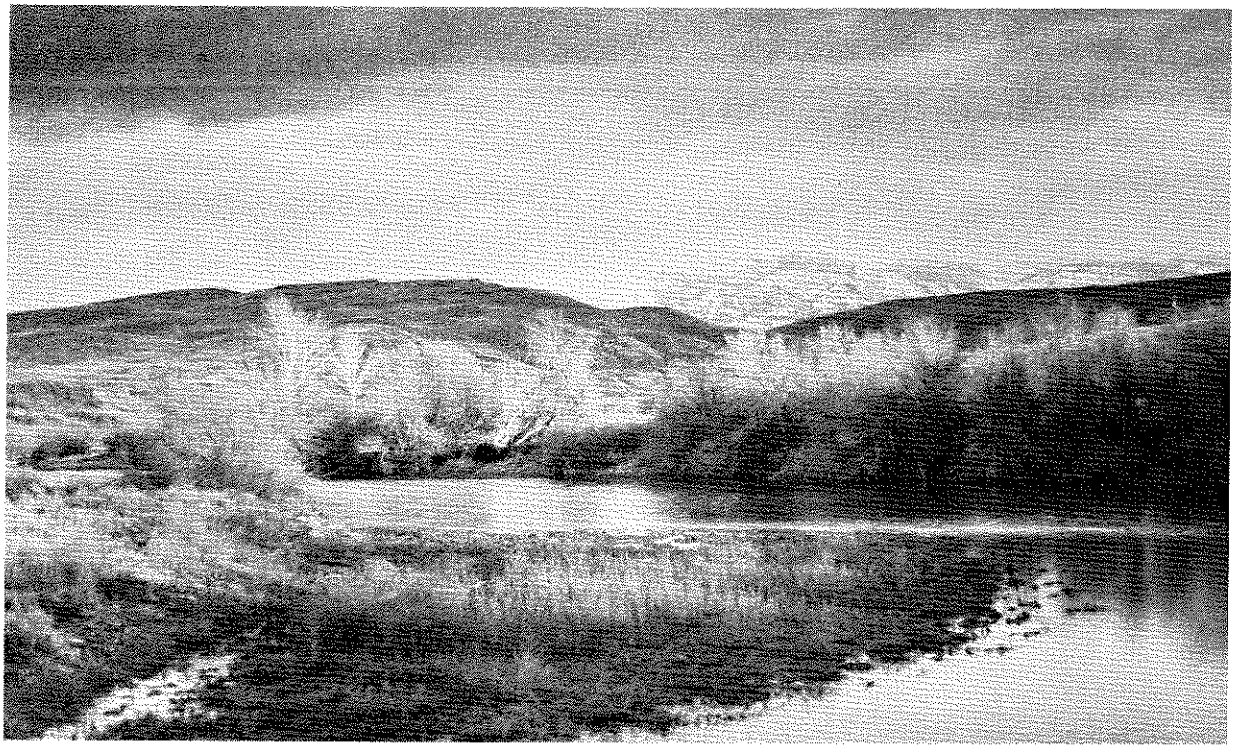
WATER RESOURCES OF THE WEISER RIVER BASIN, WEST-CENTRAL IDAHO



Idaho Department of Water Resources
WATER INFORMATION BULLETIN NO. 44

May 1977



The Weiser River flows past snow-covered Rush Peak in Washington County, Idaho.

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WATER RESOURCES OF THE WEISER RIVER BASIN,

WEST-CENTRAL IDAHO

BY

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and

Harold R. Seitz

Prepared by the United States Geological Survey
in cooperation with
the Idaho Department of Water Resources

May 1977

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FACTORS FOR CONVERTING ENGLISH UNITS TO INTERNATIONAL SYSTEM (SI) UNITS

The International System of Units is being adopted for use in reports prepared by the U.S. Geological Survey. To assist readers of this report in understanding and adapting to the new system, many of the measurements reported herein are given in both units. Chemical data for concentrations are given only in milligrams per liter (mg/L) or micrograms per liter (μg/L) because these values are (within the range of values presented) numerically equal to equivalent values expressed in parts per million, or parts per billion, respectively.

Multiply English Units	By	To Obtain SI Units
	Length	
inches (in)	25.40	millimeters (mm)
feet (ft)	0.3048	meters (m)
miles (mi)	1.609	kilometers (km)
	Area	
acres	0.4047	hectares (ha)
square miles (mi^2)	2.590	square kilometers (km^2)
	Volume	
acre-feet (acre-ft)	1233	cubic meters (m^3)
gallons (gal)	3.785	liters (L)
tons per square mile (tons/mi^2)	0.3503	tonnes per square kilometer (t/km^2)
	Flow	
cubic feet per second (ft^3/s)	0.02832	cubic meters per second (m^3/s)
acre-feet per year (acre-ft/yr)	1233	cubic meters per year (m^3/yr)
gallons per minute (gal/min)	0.06309	liters per second (L/s)
	Mass	
tons (short)	0.9072	tonnes (t)

The following table shows the relation between °C (degrees Celsius) and °F (degrees Fahrenheit).

TEMPERATURE-CONVERSION TABLE

°C	°F	°C	°F	°C	°F	°C	°F
-5	23.0	8	46.4	21	69.8	38	100
-4	24.8	9	48.2	22	71.6	40	104
-3	26.6	10	50.0	23	73.4	45	113
-2	28.4	11	51.8	24	75.2	50	122
-1	30.2	12	53.6	25	77.0	55	131
0	32.0	13	55.4	26	78.8	60	140
+1	33.8	14	57.2	27	80.6	65	149
2	35.6	15	59.0	28	82.4	70	158
3	37.4	16	60.8	29	84.2	75	167
4	39.2	17	62.6	30	86.0	80	176
5	41.0	18	64.4	32	89.6	85	185
6	42.8	19	66.2	34	93.2	90	194
7	44.6	20	68.0	36	96.8	95	203

ABSTRACT

The study area comprises about 1,600 square miles (4,100 square kilometers) in west-central Idaho and includes the entire Weiser River basin and small areas both west and south of Weiser outside the basin. The basin is sparsely populated and the economy is chiefly agricultural.

The principal use of water in the basin is for irrigation, and the largest source of readily available water is surface water.

The principal aquifers in the basin are in the basalt of the Columbia River Basalt Group and the overlying Tertiary and Quaternary sedimentary rocks. Ground water occurs under artesian and water-table conditions in both types of aquifers.

Reported well yields in the basin range from 1 to 1,835 gallons per minute (0.063 to 122 liters per second). Specific capacities range from less than 0.01 to 61.2 gallons per minute per foot of drawdown (.002 to 12.6 liters per second per meter of drawdown).

Mean annual surface-water discharge of the basin above the gaging station Weiser River near Weiser is 788,000 acre-feet (0.97×10^9 cubic meters). The 7-day, 2-year low flow for Weiser River near Weiser is 102 cubic feet per second (2.89 cubic meters per second), and the highest peak flow was 19,900 cubic feet per second (564 cubic meters per second) in December 1955. Flow past the station Weiser River near Weiser equals or exceeds 3,000 cubic feet per second (85 cubic meters per second) 10 percent of the time. Peak flows in the tributaries at lower altitudes normally occur during January and in the tributaries at higher altitudes during April and May.

Ground water in the basin is generally of good chemical quality, with dissolved-solids concentrations generally less than 200 milligrams per liter. However, the possible contamination of some rural wells by barnyard or septic-tank pollutants is suspected.

Surface waters of the basin are also generally of good chemical quality, with dissolved-solids concentrations less than 150 milligrams per liter, except during periods of low flow in late summer when water temperatures near 25°C, algal growths and coliform bacteria were noted in several reaches of the Weiser River.

Suspended-sediment yields from streams in the study area range from 5 tons per square mile (2 tonnes per square kilometer) to over 500 tons per square mile (200 tonnes per square kilometer).

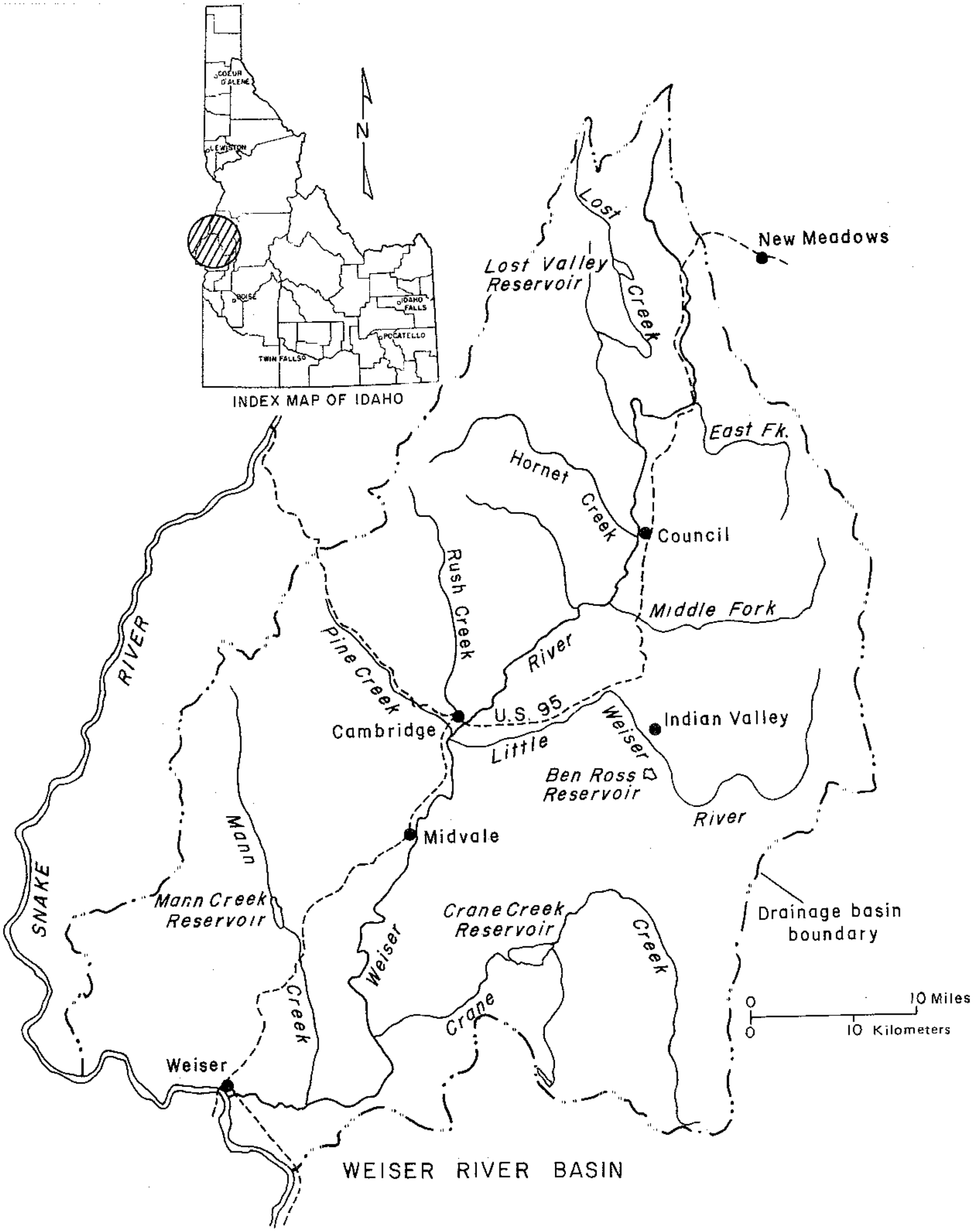


FIGURE 1. Map showing area covered by this report.

INTRODUCTION

The study area comprises about 1,600 mi^2 (4,100 km^2) and includes the entire Weiser River basin and small areas, both west and south of Weiser (fig. 1), which drain directly to the Snake River. The basin is sparsely populated. Populations of the four principal towns in 1970 were: Weiser, 4,071; Council, 884; Cambridge, 567; and Midvale, 172.

The economy of the basin is chiefly agricultural. The principal crops are small grains, hay, some fruit, sweet corn, sugar beets, and potatoes. Most of the crops are irrigated; however, some dryland farming is practiced. In addition, beef cattle, dairy cattle, and sheep are raised in the basin. Because the economy of the basin is based so largely on irrigated agriculture, the water resources of the basin are of vital concern to the inhabitants. An understanding of the basin's water resources would allow for their more efficient use.

Objectives of Study

The U.S. Geological Survey undertook this study as part of a continuing cooperative program of water-resources investigations with the Idaho Department of Water Resources (IDWR). The study was designed to meet the needs of the IDWR in planning for water-resources development and in administering water rights and the needs of water users. Specific objectives of the report are to: (1) describe the general distribution and availability of the water resources; (2) describe the chemical quality of these waters; and (3) recommend a hydrologic network for the future monitoring of ground-water-level fluctuations, surface-water flow, and water-quality changes.

Scope of Study

The major emphasis of the study was on the collection of data descriptive of the general hydrologic framework of the basin. Work accomplished during the 2-year investigation included: (1) an inventory of 370 wells; (2) the collection of streamflow data on 18 tributaries of the Weiser and Snake Rivers; (3) the reestablishment of a stream-gaging station on the Weiser River at Tamarack; (4) the collection of periodic water-level data from 24 wells; (5) study of the relation of surface and ground waters; (6) hydrologic mapping; (7) the appraisal of the quality of water resources; (8) the collection of suspended-sediment data for several tributary and Weiser River sites; and (9) an evaluation of the present use of water.

Previous Studies

Several reports relating to various aspects of the water resources of the basin provided information useful to this overall assessment of the water resources. The most noteworthy reports include: (1) Walker and Sisco (1964), which evaluated the occurrence of ground water in the Midvale and Council areas; (2) Young and Mitchell (1973), and Young and Whitehead (1975), which evaluated the geothermal potential of parts of the basin; and (3) a feasibility study by the U.S. Bureau of Reclamation (1972), which dealt with the development potential of selected areas within the basin.

Three U.S. Geological Survey open-file reports are also available. Those reports—Johnson (1941, Helland (1949), and Colbert and Young (1964)—contain general information pertaining to the development of the water resources in the basin with regard to potential reservoir sites and summaries of existing streamflow records.

Acknowledgments

Many farmers and landowners in the Weiser River basin cooperated fully in this study by allowing access to their property, supplying information about their wells, and permitting water-level measurements to be made in their wells. Municipal officials and employees supplied information about their water systems. To all of the above, the authors are grateful.

U.S. Geological Survey Numbering Systems

Well- and Spring-Numbering System

The well- and spring-numbering system used by the U.S. Geological Survey in Idaho indicates the location of wells or springs within the official rectangular subdivision of the public lands, with reference to the Boise base line and meridian. The first two segments of the number designate the township and range. The third segment gives the section number, followed by three letters and a numeral, which indicate the quarter section, the 40-acre (16.2-ha) tract, the 10-acre (4.05-ha) tract, and the serial number of the well within the tract, respectively. Quarter sections are lettered A, B, C, and D in counterclockwise order from the northeast quarter of each section (fig. 2). Within the quarter sections, 40-acre (16.2-ha) and 10-acre (4.05-ha) tracts are lettered in the same manner. Well 14N-2W-6DCD1 is in the SE¼SW¼SE¼ sec. 6, T. 14 N., R. 2 W., and was the first well inventoried in that tract. Springs are designated by the letter "S" following the last numeral; for example, 12N-4W-34ABB1S.

Gaging-Station-Numbering System

Each gaging station and partial-record station has been assigned a number in downstream order in accordance with the permanent numbering system used by the U.S. Geological Survey. Numbers are assigned in a downstream direction along the main stream, and stations on tributaries between main-stream stations are numbered in the order that the tributaries enter the main stream. A similar order is followed on other ranks of tributaries. The complete 8-digit number, such as 13266000, which is used for the station "Weiser River near Weiser," includes the part number "13," indicating that the Weiser River is in the Snake River basin, plus a 6-digit station number.

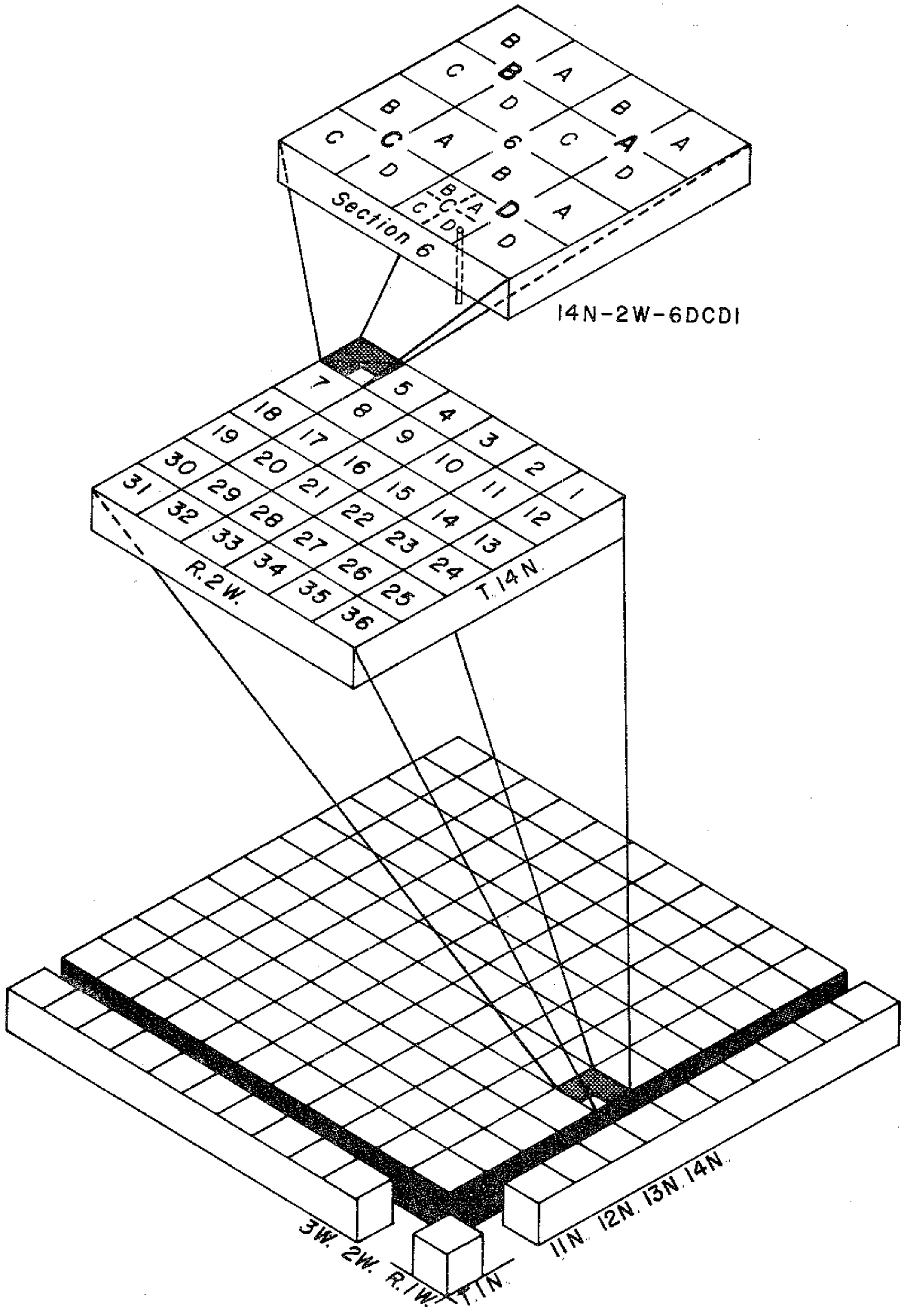


FIGURE 2. Diagram showing well- and spring-numbering system.
(Using well 14N-2W-6DCD1)

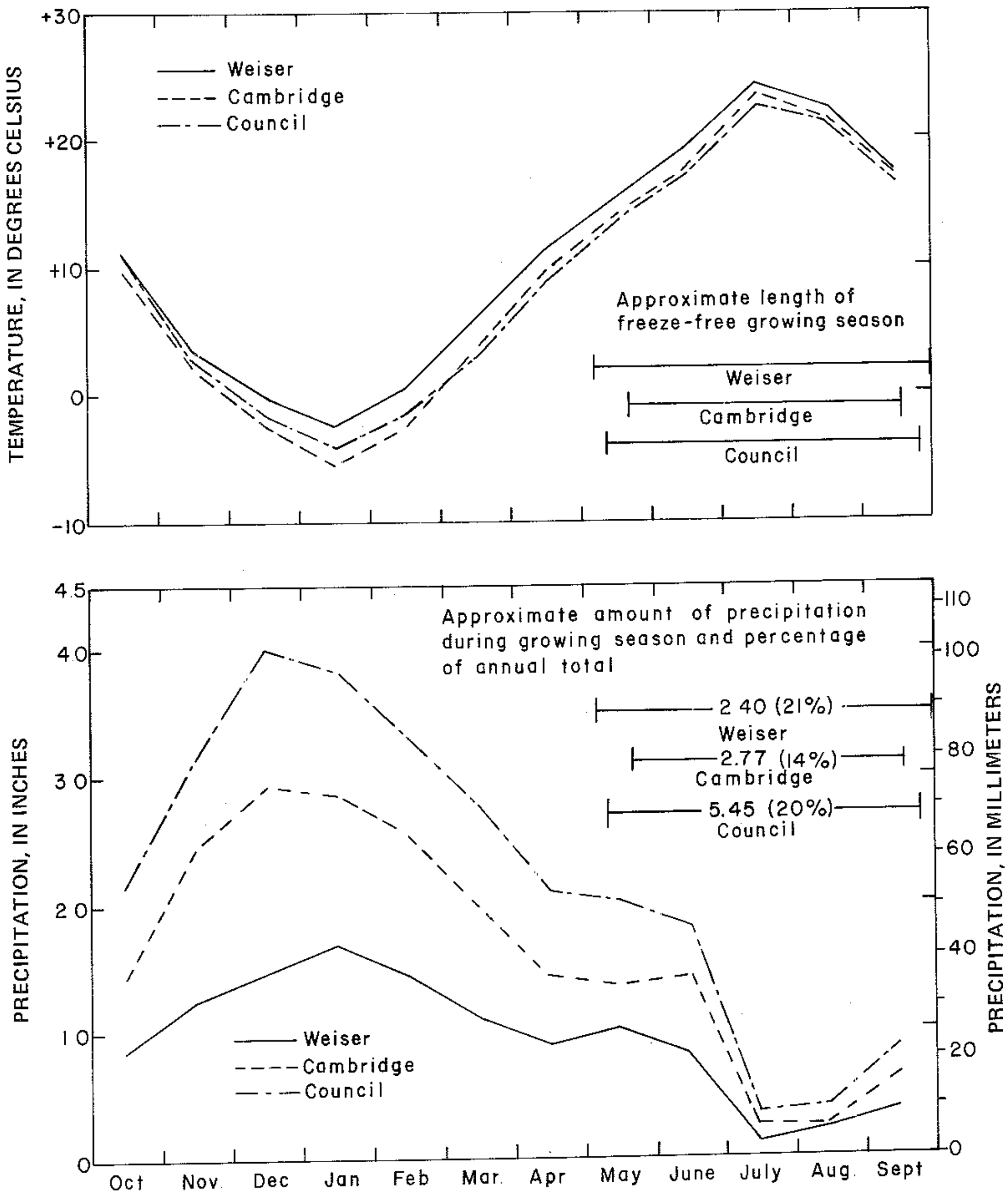


FIGURE 3. Mean monthly temperature and precipitation at selected stations in the Weiser River basin (based on data from National Weather Service 1931-60).

HYDROLOGIC FRAMEWORK

Climate

The climate of the Weiser River basin ranges from semiarid in the lowlands to subhumid in the higher mountains. The variation in the climatic conditions of the basin is caused primarily by the topographic relief. In general, the weather of the basin is characterized by warm, dry summers and cool, wet winters.

Mean annual temperatures recorded by the National Weather Service are 10.7°C at Weiser (altitude 2,160 ft, or 646 m) and 9.0°C at Council (altitude 2,935 ft, or 895 m). Mean monthly temperatures (fig. 3) range from about -5°C in January at Cambridge (altitude 2,650 ft, or 808 m) to about 24°C in July at Weiser. The freeze-free growing season is about 150 days at Weiser and 120 days at Cambridge (Stevlingson and Everson, 1968).

Mean annual precipitation in the basin ranges from about 10 in (250 mm) near Weiser to more than 45 in (1,100 mm) on Council Mountain (see fig. 12). Highest mean monthly precipitation occurs in December and January, while the lowest occurs in July and August. The amount of precipitation during the freeze-free growing season in the Weiser River basin ranges from 2.40 in (61 mm) at Weiser (21 percent of the mean annual) to 5.45 in (138 mm) at Council (20 percent of the mean annual).

Landforms and Drainage

The generally mountainous topography of the basin is bisected by a line of lowlands along the Weiser River. The lowlands are structural basins in the basalts that have been partly filled with sedimentary deposits (fig. 4). Between lowland segments, the Weiser River flows through canyons cut in the basalt. The altitudes of the valley floors range from 2,120 ft (646 m) at Weiser to 2,935 ft (895 m) at Council. Mountains on the east side of the basin rise to 8,126 ft (2,477 m) above mean sea level, and the mountains on the west side rise to 7,876 ft (2,401 m).

The Weiser River flows generally southward to the Snake River and drains an area of approximately 1,600 mi^2 (4,100 km^2). The river is more than 110 mi (180 km) long and falls approximately 27 ft/mi (5.1 m/km) between Tamarack, altitude 4,690 ft (1,430 m), and the confluence with the Snake River at Weiser, altitude 2,100 ft (640 m).

Major east-side tributaries to the Weiser River include Crane Creek, Little Weiser River, Middle Fork Weiser River, and the East Fork Weiser River. The west side of the basin is drained primarily by Mann Creek, Keithly Creek, Pine Creek, Rush Creek, Hornet Creek, and the West Fork Weiser River.

Because the timing of the natural runoff peak in the basin does not coincide with that of the peak crop demands, and because ground-water supplies are limited, several dams have been built to provide storage facilities for irrigation water. Table 1 lists the characteristics of the four major reservoirs in the basin. Although these reservoirs were designed primarily for irrigation purposes, they also are used for flood control and for recreation.

Geology

The geologic formations in the Weiser River basin have been divided into (1) pre-Tertiary rocks, undifferentiated; (2) Miocene and Pliocene igneous rocks and associated sedimentary materials of the Columbia River Basalt Group; and (3) Tertiary and Quaternary sedimentary rocks. All lava flows in the basin are part of the Columbia River Basalt Group, and all overlying sedimentary rocks are of Tertiary and Quaternary age (Newcomb, 1970). Sedimentary rocks interbedded with lava flows are included with the Columbia River Basalt Group. The areal distribution of these units is shown in figure 4.

TABLE 1

CAPACITIES OF MAJOR RESERVOIRS IN THE WEISER RIVER BASIN

Reservoir name	Owner	Stream	Active[1] capacity (acre-ft)	Total capacity (acre-ft)
Lost Valley	Lost Valley Reservoir Company	Lost Creek	10,100	10,100
C. Ben Ross	Little Weiser[2] River Irrigation District	Little Weiser River	7,600	7,800
Mann Creek	U.S. Bureau of Reclamation	Mann Creek	11,000	13,000
Crane Creek	Crane Creek Reservoir Administration Board	Crane Creek	52,000	52,000
Totals			**80,700**	**82,900**

1/ Reservoir capacity available for release.

2/ Reservoir not located on river.

Data from U.S. Bureau of Reclamation, 1972.

To convert acre-feet to cubic meters, multiply by 1,233.

Surface exposures of the pre-Tertiary rocks are restricted to a few places on the higher mountains that form the western and eastern drainage divides. These rocks consist of the Seven Devils Group of Permian and Triassic age, which include some sedimentary rocks, and granitic rocks of the Idaho batholith of Cretaceous age.

The Columbia River Basalt Group is the predominant rock type in the Weiser River basin. The group crops out in hill and mountain areas and is exposed in the canyons along the Weiser River. It also underlies the valleys and the broad, undulating plain in the Crane Creek area. The individual lava flows range in thickness from a few feet to about 50 ft (15 m) (Walker and Sisco, 1964).

The sedimentary rocks of Tertiary and Quaternary age are primarily of lacustrine origin and consist mainly of clay and silt. Some sand bodies are included in the sequence, but gravel is uncommon, except in the lowlands near Weiser. A few thin layers of sand and gravel are exposed in terraces along the Weiser River near Midvale and Cambridge. These deposits are generally less than 10 ft (3 m) thick and occur at very shallow depths. Their areal extent is unknown, but they are thought to be limited to the river flood plain.

Water Use

The principal uses of water in the Weiser River basin, in order of quantities used, are irrigation, domestic, stock and industrial.

The principal source of irrigation water for the approximately 55,000 acres (22,000 ha) of irrigated land is the Weiser River and its tributaries. Some supplemental irrigation water is supplied from wells, primarily in the southern part of the basin near Weiser.

Domestic and stock water supplies for the basin are derived chiefly from individual wells and springs. Municipal water supplies are obtained from both ground- and surface-water sources. The towns of Council, Cambridge, and Midvale receive water from seven wells open to basalt of the Columbia River Basalt Group. The City of Weiser obtains water from three wells open to the sedimentary-rock aquifers and also from the Snake and Weiser Rivers.

Industrial water use in the basin is limited to the lumber industry in the central and northern parts of the basin. The primary use of the water by this industry is for mill ponds, which results in very little consumptive use. Most industrial water supplies are obtained from surface-water sources with some supplemental ground-water pumpage.

Water rights and applications for appropriation of water granted by the Idaho Department of Water Resources for surface water in the Weiser River basin as of April 1974 totaled slightly more than 1,000 ft^3/s (28 m^3/s). Table 2 shows the amount of allocated water (decrees, licenses, and permits) for the Weiser River and its major tributaries. These appropriations are primarily for surface water. Estimates of ground-water pumpage for irrigation and other uses were beyond the scope of this investigation.

TABLE 2

WATER RIGHTS (DECREES, LICENSES, AND PERMITS) IN THE WEISER RIVER BASIN, APRIL 1974

(Data furnished by Idaho Department of Water Resources)

Source	Rate of diversion allowed by rights (ft^3/s)			
	Decrees	Licenses	Permits	Total
Weiser River	259	145	47.2	451
West Fork Weiser River	1.83	0	0	1.83
East Fork Weiser River	19.3	0	0	19.3
Middle Fork Weiser River	73.7	0	0	73.7
Beaver Creek	0	1.05	0	1.05
Gaylord Creek	0	5.2	6.4	11.6
Warm Spring Creek	0	1.8	2.0	3.8
Mill Creek	13.0	0.7	0	13.7
Hornet Creek	18.9	1.2	0.53	20.6
Lester Creek	0	0.48	0	0.48
Cottonwood Creek	19.6	0.8	0	20.4
Johnson Creek	0	1.5	0	1.5
Goodrich Creek	0.28	12.9	0	13.2
Cow Creek	1.44	1.38	0	2.82
Rush Creek	23.0	10.0	0	33.0
Spring Creek	0.95	0	0.1	1.05
Pine Creek	24.5	4.02	0	28.5
Dixie Creek	0	1.2	0	1.2
Keithly Creek	15.9	2.1	0	18.0
Banner Creek	0	0	2.4	2.4
Sage Creek	6.96	0.06	14.0	21.0
Deep Creek	0	0	1.0	1.0
Pole Creek	0	0	2.4	2.4
Thousand Springs Creek	0	1.6	0	1.6
Hog Creek (near Crane)	0	0	0.8	0.8
Mill Creek (near Crane)	0	2.4	0	2.4
Crane Creeks[1]	4.67	32.3	12.5	49.5
Cove Creek	0	1.2	3.0	4.2
Mann Creek	0	0	47.3	47.3
Monroe Creek	All	28.1	5.12	33.2
Jenkins Creek	0	21.1	0	21.1
Scott Creek	0	0.62	6.4	7.02
Hog Creek	0	0.64	0	0.64
Miscellaneous Streams	4.42	33.7	38.6	76.7
Miscellaneous Springs	0	4.6	12.7	17.3
Total	**487**	**316**	**202**	**1,005**

1/ Includes both North and South Forks of Crane Creek.
2/ Monroe decrees not shown in total.
3/ Water rights given in acre-feet — converted to cubic feet per second assuming a 180-day flow period.
(To convert cubic feet per second to cubic meters per second - multiply by 0.02832).

GROUND WATER

Occurrence

Ground water occurs in all the geologic units of the Weiser River basin. The areal distribution and water-bearing characteristics of these units are shown in figure 4.

The most important and productive aquifers in the basin are in the Columbia River Basalt Group. The group is exposed in the mountains and also underlies the valleys and lowlands throughout the basin. Ground water in the basalt occurs mainly in fractures, joints, and breccia zones of the individual lava flows and in sand and gravel beds that are interlayered with basalt flows. Ground water occurs under both water-table and artesian conditions. The water-table occurrence is limited mostly to the valleys and uplands of the northern part of the basin, whereas artesian conditions occur in the basalt underlying the valleys and lowlands of the central and southern parts of the basin.

Sedimentary rocks of Tertiary and Quaternary age and their aquifers are restricted to the valleys and lowlands. These aquifers are composed primarily of sand, silt, and clay. The main water-bearing zones are thin layers of sand and gravel. Ground water in the sedimentary-rock aquifers is generally confined or semiconfined in all parts of the basin, except for that in the lowlands adjacent to Weiser, where water-table conditions exist. Water-table conditions also are found in the surficial sand and gravel deposits adjacent to the Weiser River near Cambridge and Midvale.

The occurrence of ground water in the pre-Tertiary rocks, which are exposed only in isolated places in the higher mountains, is limited to fractures and weathered zones. The fractures and weathered zones are the principal sources of water for springs in these areas.

Source

Most of the ground water in the Weiser River basin is derived from precipitation falling within the drainage basin. An unknown but probably small quantity of recharge to the ground-water system probably results from infiltration of imported water introduced into the basin by the Lower Payette canal.

The basaltic rocks exposed in the catchment areas of the surrounding uplands and mountains also compose the principal aquifers underlying the valleys and lowlands. The principal source of recharge to the basalt aquifers is precipitation falling on the basalt in the mountains. This basalt accepts snowmelt through its fractures, joints, and other connected pores which also serve as conduits that transmit water to the aquifers underlying the valleys and lowlands. Recharge to the basalt aquifers occur principally during periods of snowmelt.

Sedimentary-rock aquifers are recharged by infiltration of water from snowmelt runoff, streams, canals, ditches, and irrigated fields. It is also suspected that some recharge may result from vertical upward percolation of water from the underlying artesian basalt aquifers. The sedimentary-rock aquifers are recharged primarily during snowmelt runoff and the irrigation season.

Water-Level Fluctuations

Ground-water levels in the Weiser River basin fluctuate in response to snowmelt runoff, application of irrigation water, and ground-water pumping. Generally, the magnitude of these fluctuations is greatest in the sedimentary-rock aquifers and least in the basalt aquifers.

Fluctuations of ground-water levels in selected wells in the Weiser River basin are shown on hydrographs (fig. 5), and the well locations are shown in figure 6.

Generally, water levels in wells in both the basalt and the sedimentary-rock aquifers in the Weiser River basin begin to rise in response to snowmelt runoff. The water levels continue to rise during the snowmelt-runoff period and then gradually decline.

Water levels in well 12N-5W-34ABC1 completed in the sedimentary-rock aquifer near Monroe Creek, and well 17N-1W-15AAC1 completed in the basalt aquifer near Fruitvale, show water-level fluctuations that correspond with snowmelt runoff. Water levels in both wells rise during snowmelt runoff and then gradually decline throughout the summer, fall, and winter. The natural hydrograph of well 17N-1W-15AAC1 has been slightly distorted because of pumping. Water-level fluctuations for several other wells in figure 5 also show the same seasonal trends.

In areas where excess irrigation water infiltrates to the underlying aquifer, water levels start to rise in conjunction with snowmelt runoff. However, the water levels continue to rise throughout the summer (growing season) in response to the infiltrating irrigation water and then gradually decline after the irrigation season ends.

Water levels in well 11N-6W-25CAC1 completed in the sedimentary-rock aquifer west of Weiser and well 12N-4W-31DBB1 completed in the sedimentary-rock aquifer near Mann Creek (fig. 5) show water levels affected by the infiltration of irrigation water. Water levels rise during the irrigation season and generally reach a maximum in September.

Water-levels in areas affected by ground-water pumping for irrigation show declines beginning in late spring or early summer. These declines continue until fall when water levels start to recover after the pumping season. The effects of ground-water pumping in different parts of the Weiser River basin are shown by the following hydrographs (fig. 5): well 10N-5W-16BBC1, completed in the sedimentary-rock aquifer east of Weiser; well 13N-1W-32ACD1, completed in the basalt(?) aquifer near Crane; wells 13N-4W-12CDC1, completed in the sedimentary-rock(?) aquifer and 13N-3W-10CDD1, completed in the basalt aquifer near Midvale; and well 16N-1W-3DDD2, completed in the sedimentary-rock aquifer near Council.

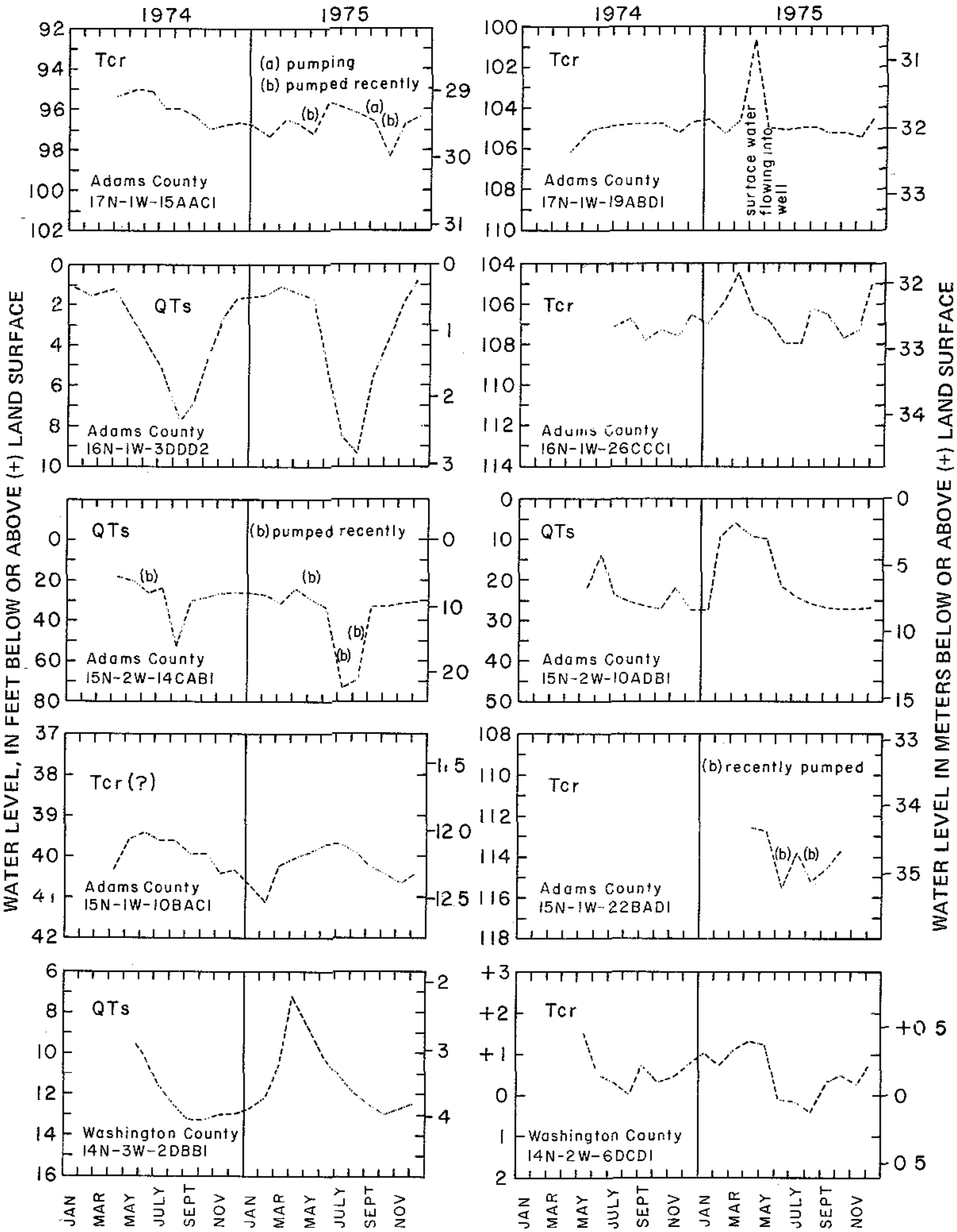


FIGURE 5. Ground-water levels in selected wells in the Weiser River basin.

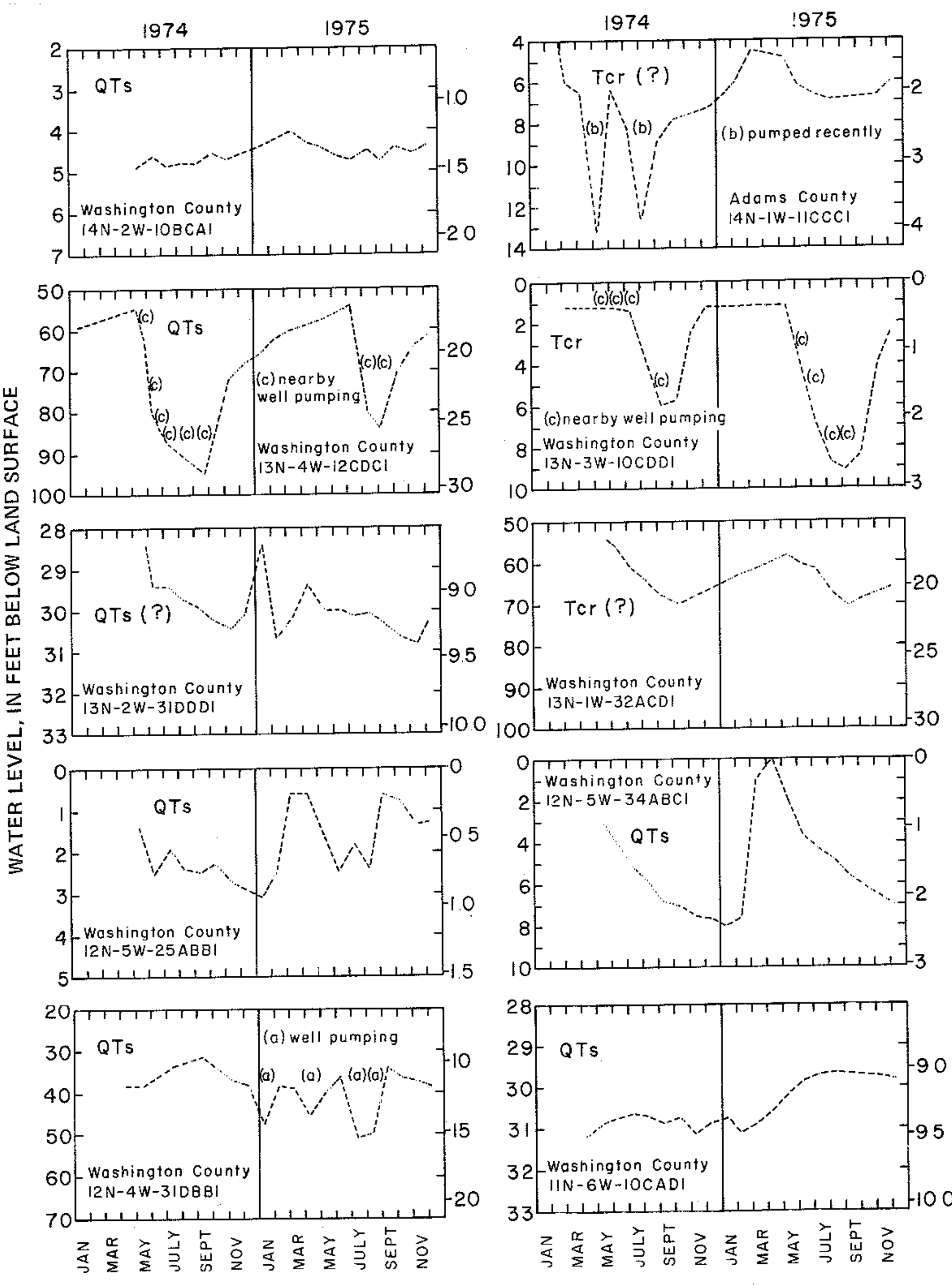
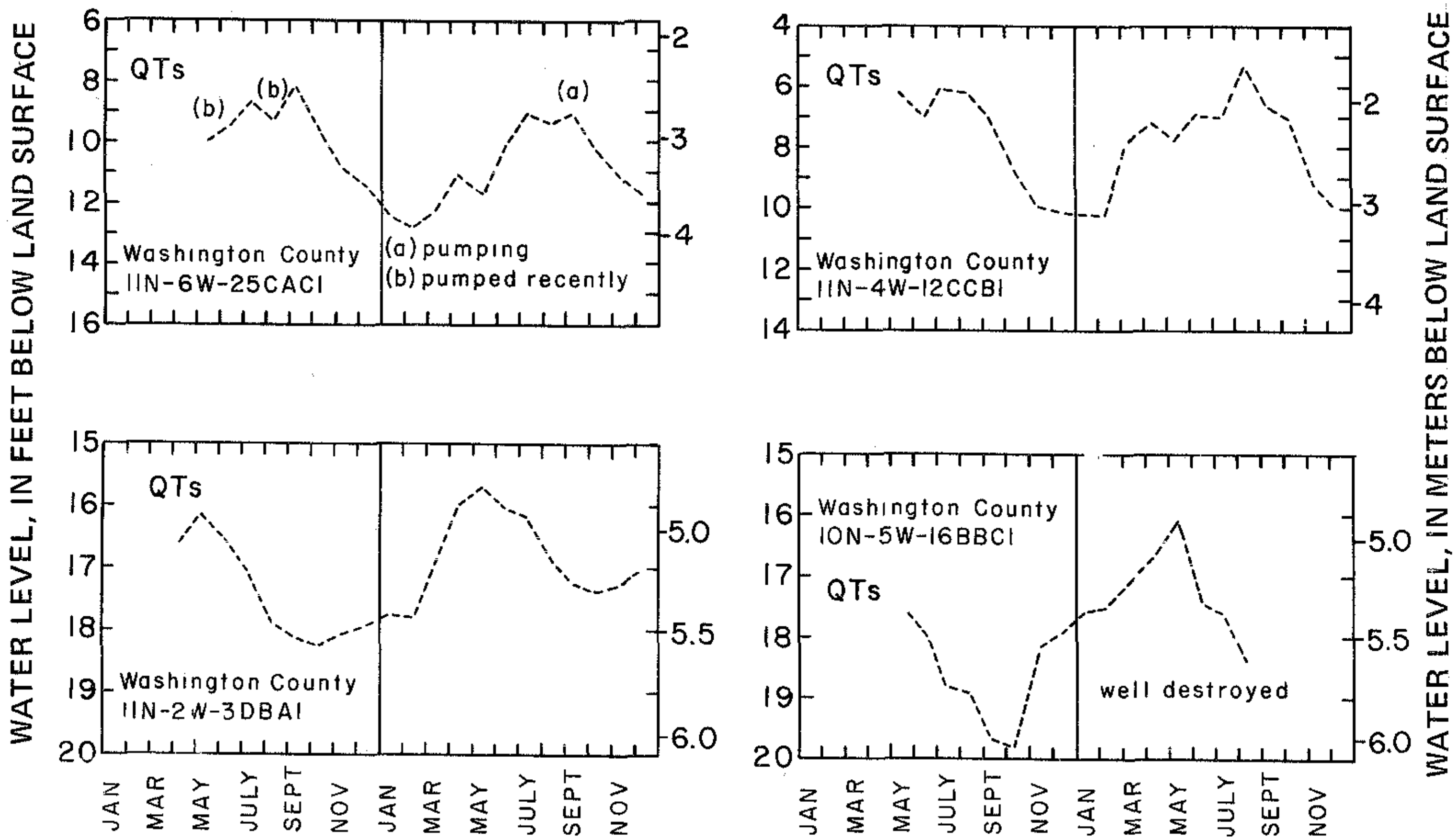


FIGURE 5. Ground-water levels in selected wells in the Weiser River basin (continued).

FIGURE 5. Ground-water levels in selected wells in the Weiser River basin (continued).



QTs Quaternary and Tertiary sedimentary rocks

Tcr Columbia River Basalt Group

Movement

The general direction of ground-water movement in parts of the Weiser River basin can be inferred from contours on the potentiometric surface based on 370 water levels measured or reported in the fall of 1975 (fig. 6). Data for all inventoried wells in the Weiser River basin are given in basic-data table A. The ground-water movement is perpendicular to the potentiometric surface contours and downgradient. The potentiometric-surface (fig. 6) includes the surface of the saturated zone in the areas where the ground water is unconfined and the hydrostatic head in areas where the ground water is semiconfined or confined.

Ground water in the Weiser River basin in general moves from areas of higher altitude to areas of lower altitude. Potentiometric contours are shown only along the axis of the Weiser River and its major tributaries because well data are not available for other parts of the basin. Although there are no well data available in the mountainous areas, it is assumed that the ground water moves from these catchment areas to the lowlands and valleys through basalt of the Columbia River Basalt Group.

The potential for ground-water movement is shown on figure 6 in the greatest detail in the valley segments at Council, Cambridge, and Midvale, and in Indian Valley and Crane Creek Valley. The potential gradient is rather flat in these valleys and ground water moves toward the Weiser River and other streams where it is discharged by evapotranspiration and inflow to the streams.

The direction of ground-water movement near Weiser and along Mann Creek Valley is controlled primarily by recharge resulting from infiltration losses of applied irrigation water. Ground water moves toward the Weiser and Snake Rivers from the irrigated areas adjacent to each river. In the Mann Creek Valley, ground water moves from the irrigated areas along the eastern side of the valley southwestward to Mann Creek, which flows along the western edge of the valley.

In addition to the lateral ground-water movement implied in figure 6, ground water in the semiconfined and confined systems may also move vertically. Vertical movement is controlled by the hydrostatic head differences and the hydraulic conductivity of the materials in which the water is moving. In the Cambridge and Midvale areas, ground water moving upward from the basalt aquifers may be an important source of recharge to the sedimentary-rock aquifers.

Discharge

Ground water is discharged in the Weiser River basin by springs, seepage to stream channels, evapotranspiration, pumping, and subsurface outflow.

Springs and seeps in the Weiser River can be divided into two groups; intermittent and perennial. Generally, the intermittent springs are in the lowlands and valleys. These springs usually head in small draws and drain local shallow, unconfined aquifers that respond directly to the infiltration of local precipitation. The perennial springs, for the most part, are found in the high mountains of the basin. The base flow of the Weiser River and most of the perennial streams is derived from these upland springs and seeps.

BASIC-DATA TABLE A

RECORDS OF WELLS IN THE WEISER RIVER BASIN

Altitude: From topographic map.

Well Finish: F - gravel packed with perforations;
ϕ - open end;
P - perforated;
S - well screen;
T - sand point;
S - open hole.
X - open hole.

Water Level: (+) - feet above land surface;
R - reported.

Principal Aquifer: QTs - Quaternary and Tertiary sedimentary deposits;
Tcr - Basalts of Columbia River Basalt Group.

Use of Water: H - domestic; I - irrigation; P - public supply; S - stock; U - unused

Remarks: Log - Driller's log available;
Q.W. - Chemical analysis of water available (basic-data table F)

Well Number	Altitude of land surface, feet above mean sea level	Reported depth of well, feet below land surface	Casing: Diameter (inches)	Casing: Feet below land surface to first perforation	Well finish	Water Level: Feet below land surface	Water Level: Date measured	Principal aquifer	Depth to principal aquifer, feet below land surface	Reported specific capacity ([gal/min]/ft of drawdown)	Reported discharge (gal/min)	Use of water	Horsepower	Remarks
19N-01E-31BDC1	4200	112	6	17	X	52.60	09-24-75	QTs	20	8		H	1	Log
18N-01E-19CAA1	3680	142	6	19	X	34.51	09-24-75	Tcr	90	10		H		Log
17N-02W-04BBC1	3760	80	6	40	X	62.97	09-24-75					H, S	½	
09CAB1	3580		6			Flows	09-24-75					H	¾	Flows
12AAA1	3700	17	16			3.84	07-10-74					U		
14DCB1	3240	10	6			6.97	09-24-75					H	⅓	
23CAA1	3440	142	8	17	X	67.35	09-25-75	Tcr	80	25		I	3	Log; Q.W.
17N-01W-02DAA1	3520	172	6	19	X	147.07	09-24-75	Tcr	160	10	10	H	1	Log
02DDA1	3340	76	6	35	X	35.64	09-24-75	Tcr	65	9	0.26	H	1	Log; Q.W.
09ACD1	3160	223	8	55	X	96.85	09-24-75	Tcr	115	20	2.0	S	1	Log
09DDD1	3090	83	8	23	X	50.40	09-24-75	Tcr	20	20	2.0	H	1	Log
10BBC1	3090	169	8	100	X	21.74	09-24-75	Tcr	160	20	0.2	H	1	Log
12CDA1	3550	315	6	63	X	224.80	09-24-75	Tcr	120	10		H	1½	Log

Basic Data Table A — continued

Well Number	Altitude of land surface, feet above mean sea level	Reported depth of well, feet below land surface	Casing: Diameter (inches)	Casing: Feet below land surface to first perforation	Well finish	Water Level: Feet below land surface	Water Level: Date measured	Principal aquifer	Depth to principal aquifer, feet below land surface	Reported specific capacity ((gal/min)/ft of drawdown)	Reported discharge (gal/min)	Use of water	Horsepower	Remarks
17N-01W-14BCC1	3100	120	8	83.5	X	44.65	9-24-75	Tcr	85	20	1.0	H	¾	Log
15AAC1	3115	131	6	111	X	96.49	09-23-75	Tcr	129	7	0.35	H		Log; Q.W.
15ACA1	3050	150	8			54.80	09-24-75					H	½	
18BAD1	3520	209	8	7	X	164.97	09-24-75	Tcr	200	10		S	1½	Log
19ABD1	3355	150	8	2	X	105.48	09-23-75	Tcr	140	15	1.5	U		Log
23CAC1	3080		6			1.63	09-24-75					U		
25BAC1	3400	100	6	38	X	23.34	09-24-75	Tcr	55	20	0.67	H	¾	Log
26BDB1	3015	135	8	56	X	19.49	09-24-75	QTs	90	30	1.0	U		Log
26DBC1	3060	170	8	44	X	27.05	09-23-75	QTs	165	20	1.0	H		Log
26DCC1	3080	140	6	61	X	56.38	09-25-75	QTs	65	10	0.29	H	1½	Log
34ABA1	2990	120	6			37.69	09-25-75	Tcr				H	3	Log
34DAA1	3010	98	6	45	X	7.19	09-23-75	QTs				H	1	
35ABB1	3085	115	8	42	X	27.13	09-25-75	Tcr	62	30	1.5	I	3	Log
35DCC1	3105	185	6	37	X	51.03	09-23-75	Tcr	130	15	.75	H	1	Log
36CBB1	3170	102	6		X	38.48	09-23-75					H	½	
16N-04W-21DAA1	4400	180	6	146	X	117.35	09-24-75	Tcr	140	15		H		Log
28CBC1	3810		6			80.57	07-23-74					H	½	
16N-01W-01BBB1	3240	147	6	51	X	48.30	09-30-75	Tcr	50	20	0.29	H	½	Log
01CBB1	3280	152	6	124	X	79.80	09-25-75	Tcr	135	20	4.0	H	1	Log
02AAD1	3170	135	6	46.5	X	24.73	07-09-74	Tcr	135	10	1.0	H	1	Log
02CBB1	3030	102	8	46	X	25.20	09-23-75	QTs	85	10	.33	H	1	Log; Q.W.
03ADC1	2995	73	6	41.5	X	12.28	09-23-75	QTs	55	10	0.67	H	½	Log
03BDA1	2960	153	8	47	X	37.73	09-23-75	Tcr	105	20	1.0	H	1	Log
03DAD1	2990	130	6	67	X	15(R)	09-10-73	Tcr	120	30	3.0	H	1	Log
03DDD2	2985	78	12	2.2	P	8.64	09-23-75	QTs				U		Log
04DAD1	2960	210	8	12	X	40(R)	06-10-65	Tcr	12	20	1.0	H		Log
09DDA1	2915	104	6	18	X	25.85	09-23-75	Tcr	97			H	½	Log
10BBB1	2920	156	8	18	X	25.85	09-23-75	Tcr	98	15	1.5	H		Log

10BDB1	2925	60	12			7.42	09-23-75	QTs				H		
10CDC1	2910	95	6	21	X	17.87	09-23-75	Tcr	90	30	3.0	H		Log; Q.W.
10DDD1	2950	38	6	33	X	11.52	07-10-74	QTs	36	8	0.27	H	½	Log
11ACC1	3100	210	8	110	X	150.17	09-23-75	QTs	160			H		Log
11BCC1	2995	90	6	66	X	21.72	09-23-75	QTs	84	30	1.67	H		Log
11BCD1	2990	362	6	106	X	40(R)	05-07-68	Tcr	325	20	0.20	H		Log
11DBC1	3120	270	8	120	X	26.62	09-23-75	QTs	130	30		H		Log
14ABB1	3100	730	12	291	P	210(R)	01-22-63	Tcr	220			P	40	Log; Q.W.
14BCB1	2980	134	6	30	P	33.70	09-23-75	QTs	30	8		H	¾	Log
15AAC1	2925	407	12	87	P	49.48	09-23-75	Tcr	24	365	7.93	P	30	Log; Q.W.
15ACA1	2920	435	8	260	X	28.03	09-23-75	Tcr				I	5	
15BBA1	2910	180	12			15.62	09-23-75	Tcr	14	100	0.83	I	7½	Log
21AAD1	2885	80	8	28	P	15.27	09-23-75	QTs	28	25	1.25	H		Log
22AAA1	2995	510	12	130	P	116.93	09-23-75	Tcr	140	240	0.8	I	25	Log
22BAA1	2950	390	10	28	X	70.70	09-23-75	Tcr	60	50	0.45	I	3	Log; Q.W.
23ABA1	3180	106	6	105	X	13.74	09-23-75	Tcr	90	10	0.25	H	1	Log
26ABD1	3160	93	6	87	X	5.35	09-23-75	Tcr	87	20	0.40	H		Log
26CCC1	3045	150	6	34	X	106.86	09-23-75	Tcr	110			U		Log
26CCD1	3060	390	8	30	X	90(R)	12-28-63	Tcr	230	15	0.30	H		Log
26DBC1	3100	125	6			13.52	09-23-75					H		
27CBB1	2915	174	10			2.70	09-23-75					I		
34ABA1	3000	100	6		X	8.27	09-23-75					H		Partial Log
34ACB1	2980	8	48	8	ϕ	5.37	09-23-75	QTs				H	1	
15N-04W-25ADA1	2960	20	6	20	ϕ	3.85	09-24-75					U		
15N-03W-01BAA1	3680	140	12	140	ϕ	12(R)	10-03-66	QTs	35			H		Log
10BDA1	3230	17	20	17	ϕ	6.48	09-24-75	QTs				H		
14BBA1	3160	140	6	108	X							H		Flows
28CAD1	2820					+9.80	09-24-75					H		Flows
31DAC1	2860	110	8	18	X	16.36	09-25-75	Tcr	65	5	0.10	H	½	Log; Q.W.
32AAA1	2835	53	8	32	X	5.25	09-25-75	QTs	15	5	.25	S		Log
36CDD1	2710	76	4		X	14.00	09-23-75					H		
15N-02W-06DBB1	3240	220	8	32	X	179.34	09-23-75	Tcr	220	22	4.4	H	3	Log
10ADB1	2790	55.4	6			27.39	09-23-75	QTs				U		
14CAB1	2805	150	8	79	X	33.73	09-23-75	QTs	75	10		H		Log
15CDB1	2790	180	8	20	X	65.74	09-22-75					H	½	
15DDB1	2770	75	8	35	X	13.53	09-22-75	Tcr	70	10		H	½	Log; Q.W.
16DCD1	2720		6			10.58	09-23-75					H	½	
22ADA1	2880	405	10	241	X	92.23	09-23-75	Tcr	238			I	40	Log
31CAD1	2685		6			9.81	09-23-75					S		

Basic Data Table A — continued

Well Number	Altitude of land surface, feet above mean sea level	Reported depth of well, feet below land surface	Casing		Well finish	Water Level		Principal aquifer	Depth to principal aquifer, feet below land surface	Reported specific capacity ([gal/min]/ft of drawdown)	Reported discharge (gal/min)	Use of water	Horsepower	Remarks
			Diameter (inches)	Feet below land surface to first perforation		Feet below land surface	Date measured							
15N-01W-03CBA1	3040	200	6	18	X	136.11	09-22-75					H	¾	
04CBC1	2870		4		T	3.22	09-22-75					H	½	
05DAB1	2840	50	8	34	X	4.47	09-22-75	Tcr	32	50	5.0	H	1½	Log
10BAC1	2935	61	6			40.27	09-23-75	Tcr (?)				U		
10BBB1	2905	115	6	40.5	X	7.57	09-22-75	Tcr	86	30	1.09	H		Log
14ABC1	3040											T		Flows
15BDA1	3280	220	8	147	S	165.37	09-22-75	QTs	210	15		H		Log
16DAD1	3270	225	6	218	X	153.48	09-22-75	QTs	190	20	2.0	H		Log
22BAD1	3260	175	8	84	X	113.92	09-23-75	Tcr	175	15		H	4	Log; O.W.
22BBB1	3240	96	6			94.83	09-23-75					U		
22DBB1	3280	150	8	102	X	126.65	09-22-75	Tcr	150	15		H		Log
25BDD1	3220	165	8	20	X	136.49	09-22-75	Tcr	160	15		H	¾	Log
27CAA1	2930	72	6	35	X							H	1	
31DCA1	2800	20	6		ϕ	10.93	09-22-75					H		
33BDC1	2845	129	6	20	X	20.20	09-22-75					H		
33DAC1	2860	125	6	64	X	30.83	09-22-75	QTs	110	25	1.67	H	1	Log
34ADC1	2920	86.15	6			11.33	09-22-75					U		
35CAC1	2955	16	1½	16	T	5.56	09-22-75					U		
14N-04W-25BDA1	2720		24		X	2.30	09-25-75					S		
25BDA2	2720	40	6		X							H		Flows
36DDC1	2705	178	8		X	37.20	09-25-75	QTs	141	27	1.93	I	3	
36CBA1	2715		36		ϕ	22.05	09-25-75					U		
14N-03W-01DBD1	2675	137	6	35	X	14.86	09-23-75	QTs	137	20	0.4	H	1	Log
02ACA1	2675	362	12	6	P			Tcr				I		Log, Flows
02BAC1	2678	254	4	187	X	+44.40	09-24-75	Tcr	250			H		Log, Flows
02DBB1	2660	29.1	6			12.63	09-23-75	QTs				U		
03ADD1	2680	179	6	90	X	16.60	09-24-75					I	5	
03DDB1	2680	102	6	61	X	29.17	09-24-75	QTs	98	45		I	3	Log

03DDC1	2680	929	8	906	ϕ			Tcr	906			P		Log; Flows; Q.W.
03DDC2	2680	400	8		X	20(R)		Tcr				P	10	Log; Q.W.
04ACD1	2710	317	12	50	X			Tcr	295	35	1.75	I	7½	Log, Flows
04BDB1	2790		6			37.43	09-23-75					H	¾	
10BCB1	2675	57	6	33	X	4.74	09-23-75	QTs	56	25	5	H	1	Log
11CCB1	2625	105	8	82.5	X	6.88	09-22-75	QTs	95	30	3.75	H	¾	Log; Q.W.
13ABB1	2655	88	8	66	X	13.05	09-22-75	QTs	88	60	2.14	H, S	¾	Log
19CBD1	2750	41	6			5.05	09-25-75					U		
19DAD1	2670	45	4			1.64	09-25-75					S		
19DAD2	2680		6			0.70	09-25-75					H	½	
20CCC1	2675	8.47	3		ϕ	5.9 (I)	06-18-74							Destroyed
24BCA1	2720	189	12	52	P	132.4	09-22-75	QTs	45	700	8.05	I, H	50	Log
25DBD1	2690	220	12	140	X	27.6	09-22-75	Tcr	60	400	3.33	H		Log; Q.W.
27BAD1	2600	32	10	20	P	15.85	09-24-75	QTs	20	10		H, S	¾	Log
28BCB1	2680	173	6			12(R)				7		U	1	
29CAC1	2645	300	8	75	X	35.40	09-25-75	QTs	75			U		Log
30ADC1	2644	370	12	180	P							I	7½	Log, Flows
30CDD1	2635	160	8	70.5	X	22.35	09-25-75	QTs	100	20		H	½	Log
31BDA1	2640	10	6		ϕ	3.39	09-25-75	QTs				U		
32DAB1	2640		6			33.41	09-24-75					U		
33BBB1	2635	58	6			7.93	09-24-75					S	½	
34DDB1	2620		1½		T							S		Flows
35ADB1	2730	20	24(SQ)		ϕ	6.89	09-24-75					U		
14N-02W-02DCC1	2755	75	4			7.40	09-22-75					H		
06ADC1	2700	125	8	69	X	7.90	09-23-75	QTs	50	20	1.34	H		Log; Q.W.
06DCC1	2745	398	4	315	X			Tcr				I	3	Flows; Q.W.
06DCD1	2765	405.5	6	345	X	+0.11	09-23-75	Tcr	402	20		H		Log; Flows
07BDC1	2690	245	16	49	P	12.48	09-23-75	QTs	125	125	1.25	S		Log
07CBA1	2680	70	6			23.51	09-23-75					H		
08CAA1	2685	150	5	60	X	2.25	09-23-75					H		
09CCC1	2695	30	6	21	X	8.96	09-23-75	QTs				H	¾	
10BAD1	2750	12	36			4.69	09-22-75	QTs				H		
10BCA1	2705	129	6			4.69	09-23-75	QTs				U		
15ACD1	2755	115	6	74	X	14.74	09-22-75	QTs	100	25	0.71	I, H	5	Log
16DAB1	2710	212	6	208	ϕ	12(R)	07-18-69	QTs	210	4		H	1	Log; Flows
17DAA1	2715	120	8			33.96	09-30-75					H	¾	
19ADD1	2755	100	10	40	X	13.47	09-22-75	Tcr	65			S	¾	
20DBD1	2788	211.8	12	46	X	42.29	09-22-75					U		
14N-01W-02CBB1	2920	166	6	162	ϕ			QTs	162	15	0.15	H, S		Log; Flows
02DDA1	2990	18	36		W	9.20	09-27-75	QTs				H		
03BBB1	2890	103	6	100	ϕ	51.45	09-25-75	QTs	100	30	0.4	H	¾	

Basic Data Table A — continued

Well Number	Altitude of land surface, feet above mean sea level	Reported depth of well, feet below land surface	Casing		Well finish	Water Level		Principal aquifer	Depth to principal aquifer, feet below land surface	Reported specific capacity ([gal/min]/ft of drawdown)	Reported discharge (gal/min)	Use of water	Horsepower	Remarks
			Diameter (inches)	Feet below land surface to first perforation		Feet below land surface	Date measured							
14N-01W-04BBA1	2840	31.6	6		X	8.69	09-25-75					H	½	
04CBD1	2870	197	6	16	X	25.80	09-23-75	QTs	15	20		H	1	Log
04DCC1	2910	80	6			7.66	09-25-75					H	½	
10CBA1	2955	80	6	72	X	1.43	09-25-75	QTs	80	30	3.0	H	1	Log; Q.W.
11BCC1	2985	87	6	60	X	38.68	09-25-75					H	½	
11CCC1	3000	163	6	24	P	6.81	09-23-75	Tcr(?)				H		
14BBB1	3005	43	6	25	X	8.01	09-25-75	Tcr	25	3	0.06	H	1	Log
15AAB1	2990	40	6	38	X	2.35	09-23-75	Tcr	36	10	3.33	H	½	Log
15AAB2	2990	59	6	39	X	3.52	09-23-75	QTs	55			U		Log
15DBA1	3000	12	36		φ	6.03	09-25-75	QTs				H		
17CDC1	3020		6			8.62	09-25-75	QTs				S		
22ADD1	3060	85	6	72	X	11.52	09-25-75	QTs	72	12	0.6	H		Log
27ABA1	3165	170	8	72	X	82.12	09-23-75	Tcr	155	10		H	1	Log; Q.W.
27CCC1	3195	200	8			49.61	09-23-75					H		
29ABD1	3190		4									S		
29CBC1	3120	47	6	45	X	8.53	09-25-75	QTs	20	10	2.0	U		Log
30ADA1	3100	358	16	90	X							I		Flows
35BAD1	3190	75	6			13.43	09-25-75					H		
13N-04W-01BBD1	2750	234	6	139.5	X	45.56	09-25-75	QTs	175	10	1.0	H	1½	Log
11CDD2	2700	40	6	33	X			QTs	35	30	1.36	H		Log; Flows
12CDC1	2625	170	6			79.53	09-23-75	QTs(?)				U		
13DAB1	2560		6			29.65	09-25-75					H	⅓	
14DAB1	2660	90	12	70		17.31	06-19-74					H	½	Log
24BCD1	2740		6			15.17	09-25-75					U		
32BDD1	3300	65	6	46	P	34.65	09-25-75	Tcr	52	10	0.21	H	½	Log; Q.W.
13N-03W-04ABC1	2570		6			4.44	09-22-75					H	1	
05BCB1	2600	101	6	34	P	20.80	09-25-75	QTs	36	20	0.40	H	1	Log; Q.W.
06AAB1	2640	59	6	49	X	6.30	09-25-75	QTs	56	20		H	¾	Log

08ACC1	2560	25	48			10.20	09-22-75					H	½	
08CCC1	2550	963	12	435	X	+352(R)	06-15-62	Tcr	705			P		Log; Q.W. Flows
10BBB1	2590	447	12	195	F	16.43	09-22-75	Tcr	442	533	2.81	I		Log
10CDD1	2610	320	8	149	X	9.36	09-23-75	Tcr	229			I		Log
11BAB1	2690	25	6	25	ϕ	+2.70	09-24-75					H		
15BCA1	2600	160	8			23.87	09-22-75	QTs	145	25	1.0	H	3	Log
16CBD1	2585											H	½	Flows
17ADB1	2570	56	6	55	X	10.16	09-22-75	QTs	55	10	0.33	H	1	Log; Q.W.
18BCA1	2580		4			+7.36	09-30-75					H	1	Flows
19BAA1	2550	362	6	288	X	3.25	09-22-75	Tcr	360	30	0.30	H		Log; Q.W.
20AAC1	2590	30	6			3.03	09-22-75					H	½	
21CBA1	2675	125	6	125	ϕ	+1.10	09-22-75					U		Flows
22CCB1	2880		6			13.79	09-23-75					U		
24CDA1	3130	12	22	12	ϕ	1.07	09-22-75					U		
26BDD1	3110	65	6			21.28	09-22-75					S		
28ABB1	2760	35	6			13.14	09-22-75					S		
29BAB1	2590	48	6	40	X	16.18	09-25-75					H	½	
32ACC1	2960		1	40		+2.93	09-22-75					U		Flows
33BAB1	2880	117	8	71	X	21.22	09-22-75	QTs	45			H	1	
34BBA1	2845	74	6			14.48	09-22-75					H	¾	
13N-02W-05BCC1	2980		1½		T	8.33	09-23-75					S	2	
06DDA1	3000	25	24			13.14	09-25-75					U		
09CAB1	3110	32	6			11.95	06-26-74					U		
11DBA1	3275											H	1	Flows
13DBA1	3285	460	12			70.70	09-30-75					I	100	
14BCD1	3237		6			33.94	09-23-75					H	1	
15CBB1	3320	27	36			23.45	09-23-75					U		
21DCD1	3320	89	10	72	P	54.90	09-25-75	QTs	70	25		U		Log
21DCD2	3320					60.15	09-25-75	QTs		9		H	1	Q.W.
26CBC1	3240	167	6	93	X	18.88	09-25-75					H	1	
31DDD1	3325	43	6			30.58	09-24-75	QTs				U		
13N-01W-16DCA1	3285	399	16	198	P	68.69	09-25-75	QTs	270	1200		I		Log
18DAB1	3340	290	6	270	X	100.20	09-25-75							
21AAB1	3300	34	6	20	X	38.59	09-25-75							
21CDC1	3270	225	10	118.5	X	5.20	09-25-75	Tcr	124	60	0.43	H	4	Log; Q.W.
27DDC1	3310	294	12	192	P	42.60	09-24-75	Tcr	245	900	9.0	I	5	Log
29DDB1	3275	40	4	20	X	29.52	09-25-75					H	½	
31CBA1	3230	196	6			17.76	09-25-75					H	1	
32ACD1	3270	142	6			69.87	09-23-75	Tcr (?)				U		
32CAD1	3240	280	4			40.30	09-25-75					S	¾	
34BCC1	3295	300	6			11.48	09-24-75					H	1	

Basic Data Table A — continued

Well Number	Altitude of land surface, feet above mean sea level	Reported depth of well, feet below land surface	Casing: Diameter (inches)	Casing: Feet below land surface to first perforation	Well finish	Water Level: Feet below land surface	Water Level: Date measured	Principal aquifer	Depth to principal aquifer, feet below land surface	Reported specific capacity ([gal/min]/ft of drawdown)	Reported discharge (gal/min)	Use of water	Horsepower	Remarks
13N-01W-34CDD1	3280	110	6			41.38	08-01-74					H	1	
12N-05W-01DDC1	2805	49	36			31.06	09-23-75					H	¾	
11DDA1	2920	505	6	105	X	72(R)	11-03-67	Tcr	141	25	1.79	S		Log
12BCD1	2740	45	6	20	X	8.06	09-23-75					H	¾	
15DAD1	2800	115	6		P	28.59	09-23-75					H	½	
22CBA1	2600	184	12	45	P	16.03	09-22-75	QTs	45	30	0.30	I	3	Log
24ADB1	2600	20	20	20	φ	4.52	07-22-74							
24DCC1	2590	95	6	22	X	1.04	09-23-75	QTs	13	10	2.50	H	¾	Log
24DCD1	2570	118	6	40	X	3.84	09-23-75	QTs	116	10	0.17	H	½	Log
25ABB1	2592	133	14			0.92	09-23-75	QTs(?)				U		
25BDD1	2550	54	4			6.02	09-24-75					H	1	
27BDC1	2560		10			60.79	09-24-75					H	½	
27DCA1	2450	323	6	180	X	49.15	07-16-74					H		
32AAC1	2680	140	12	20	P	55.70	06-25-74	QTs	19	400	4.08	I	25	Log
33DAD1	2400	484	6	20	X	9.75	09-25-75	QTs	20	3	0.12	H	½	Log
33DBC1	2480	75	6	20	X	14.58	09-25-75					H	1	
34ABC1	2440	83	6	60	X	5.78	09-23-75	QTs				U		
34CAB1	2410		4									H		Flows
35BDA1	2560	20	6			12.83	09-24-75					U		
12N-04W-05CAD1	3170		6			56.17	09-23-75					H	½	
19CAC1	2650	100	6	72	P	39.48	09-23-75	QTs	75	8	0.17	H		Log; Q.W.
30BDC1	2600	25	30	25	φ	6.55	07-22-74					H	½	
31DBB1	2510	95	6			34.57	09-24-75	QTs				H		
12N-03W-01CDD1	3360	25	12	13	X	12.65	09-23-75	Tcr	19	5	0.33	H	½	Log; Q.W.
02DDC1	3350	75	14			22.52	09-23-75					H	1	
13DCD1	3275	200	6			39.30	09-23-75					H	1	

12N-02W-01BAD1	3220		6			17.26	09-25-75					H	½	
02BBC1	3200	209	12	16	X	10.60	09-24-75	Tcr		190	9.5	I	30	Log
03BAD1	3240	60	6	21	X	4.38	08-01-74	QTs	55	5	0.17	H	½	Log
05AAD1	3360	95	6	85	P	48.89	09-23-75	QTs	81	20	2.0	S		Log
05DDC1	3320	62	6	40	P	22.18	09-23-75	QTs	3	20	1.0	S	1	Log
06DCD1	3280	26	6			11.75	09-23-75					S	1	
07DCB1	3285	189	6		X	8.14	09-23-75					H		
14DAC1	3200	100	10	40	X	2.46	09-24-75	QTs	35			H	¾	Log; Q.W.
14DDB1	3215	59	6			6.79	09-24-75					U		
23BCD1	3200		6			5.68	09-24-75					U		
34AAD1	3220	335	10	59	P	102.97	09-24-75	QTs	63	1	.005	U		Log
35BBC1	3220	70	6	64	X	12.28	09-24-75	Tcr	24	5	.125	S	⅓	Log
12N-01W-10BBB1	3295	101	12	40	X	11.38	09-24-75					I	30	
23DCA1	3395	50	6			7.05	09-24-75					H		
11N-06W-03BBC1	2370		6			29.20	09-22-74					H	1	
10CAD1	2215	73	12	45	P	29.65	09-25-75	QTs	40	100	4.35	U		Log
11CDD1	2184		14			19.58	09-22-75					I	10	
13DCA1	2190	65	12	40	P	28.61	09-23-75	QTs	40	600	60	I	20	Log
13DCB1	2185	43	12	35	P	26.71	09-23-75	QTs	31	200		I	5	Log
14BCB1	2178	72	12	45	F	34.90	09-22-75	QTs	45	500	11.1	I	15	Log
16BDD1	2140	65	6		P	24.60	09-22-75	QTs				H	¾	
17BDD1	2117		3			+13.63	09-25-75	QTs		1.0		S		Flows; Q.W.
18DDD1	2100	125	12			11.38	09-22-75	QTs				S	1½	
20DCB1	2097	35	6			3.91	09-26-75	QTs				H	½	
21BBA1	2110	20	8	20	ϕ	4.46	09-23-75	QTs				I	1	
22CCB1	2116		4			13.56	09-26-75	QTs				H	½	
24BBD1	2165	50	12	25	P	31.14	09-23-75	QTs	25	500	20	I	15	Log
24BDB1	2176	54	12			32.17	09-23-75	QTs				I	15	
24DAA1	2180	40	10			29.39	06-13-74	QTs				I	3	
25AAA1	2173	58	12	35	P	23.48	06-13-74	QTs				I	5	
25AAB1	2162		12			16.55	09-23-75	QTs				I	5	
25CAC1	2127	39	27	10	X	10.64	09-25-75	QTs				H		Q.W.
27ADD1	2125	115	16	20	P	12.18	09-22-75	QTs	19	250	8.33	U		Log
28BCC1	2100	22	6	22	ϕ	7.71	09-22-75					H	¾	
32AAB1	2090	38	6	32	P	11.88	07-30-74	QTs	22	50	8.33	H		Log
34BBB1	2102		6			11.82	09-22-75	QTs				H	⅓	
34BDA1	2105	34	6	28	P	15.56	09-22-75	QTs	3	40	3.33	H	½	Log
11N-05W-03DCC1	2320	70	6	42	X	12.99	09-24-75	QTs	68	20	2.0	H	1	Log
03DCC2	2320		6			2.81	09-24-75					S		
07CDD1	2370	22	8	22	ϕ	14.65	09-23-75	QTs	15	100	16.7	I	½	Log
10BDD1	2320	70	6	56	P	22.89	09-30-75	QTs	54	7	0.18	H	⅓	Log

Basic Data Table A — continued

Well Number	Altitude of land surface, feet above mean sea level	Reported depth of well, feet below land surface	Casing: Diameter (inches)	Casing: Feet below land surface to first perforation	Well finish	Water Level: Feet below land surface	Water Level: Date measured	Principal aquifer	Depth to principal aquifer, feet below land surface	Reported specific capacity ([gal/min]/ft of drawdown)	Reported discharge (gal/min)	Use of water	Horsepower	Remarks
11N-05W-15ADA1	2305	2320	12			29.65	06-25-74					U		Log
15DBB1	2320	92	8	55	P	44.26	09-23-75	QTs	42	20	1.0	I	½	Log
17CDA1	2435		6			160.94	06-14-74					S	½	
19ABD1	2390	343	12	129	P	86.58	09-23-75	QTs	129	150	1.07	S		Log
19BBB1	2215	320	12	140	F	215(R)	06-30-62	QTs	240	918	61.2	I	60	Log
20BDD1	2360	195	6	99	X	105(R)	01-06-64	QTs	192	30	1.0	S		Log; Q.W.
21CDC1	2190	103	6	31	X	22.65	09-23-75	QTs	27	6	0.12	H	½	Log
27BCB1	2400	288	6	22	X	215.33	09-26-75	QTs	240	15	0.42	S	1	Log
28CAC1	2240	123	6	22	X	58.69	09-26-75	QTs	80	45	2.05	H	1	Log
29BAC1	2260	250	16	180	P			QTs				P	50	Q.W.
29BCD1	2225	226	12	123	P			QTs				P	30	Q.W.
29BDB1	2240	204	16	123	P	120(R)	06-18-63	QTs	143	450	6.82	P	40	Log; Q.W.
30BBB1	2172		12					QTs				I	10	
30BBC1	2170	50	12			19.16	09-23-75	QTs				I	10	
32ABB1	2180	40	12	20	P	8.57	09-24-75	QTs	20	100	5.56	I		Log
32BDD1	2120		60			10.59	09-24-75	QTs				I	25	
33ACA1	2115	150	6	21	X	+0.20	09-26-74	QTs	25	4	0.14	H		Log
33CDA1	2105	9	10			4.42	09-25-75	QTs				U		
34ACB1	2158	70	12		P	39.41	09-26-75	QTs				I	30	
35DCB1	2175	85	6	65	X	35.68	09-26-75	QTs	63	50	2.5	H	1	Log
36DDA1	2180	95	8			14.94	09-26-75	QTs				S	⅓	
11N-04W-06DAB1	2460	50	6			6.60	07-01-74	QTs				S	1	
07DAA1	2405		8			29.01	09-30-75	QTs				H	½	
12CCB1	2300	78	5			7.01	09-22-75	QTs				U		Q.W.
12CDC1	2300	30	6					QTs		24		H		Q.W.
12DAB1	2325	7	48		φ	3.67	09-22-75	QTs				H		
17BCD1	2395		6			19.54	09-24-75	QTs				S	½	
19DBD1	2250	48	6			5.35	09-24-75	QTs				H	½	
27ACD1	2350		4			+2.4						U		

29BBB1	2360		6			33.11	09-23-75					S	½	
30DAC1	2270		6			56.20	07-01-74	QTs				H	½	
31DBC1	2160	73	4			4.58	09-24-75	QTs				U	½	
32DDA1	2165	27	6		P	5.05	09-22-75	QTs		20	2.0	H	2	Log
33DAD1	2210	48	48		X	19.48	09-22-75	QTs				U		
34CBC1	2220	69	6	65	S	25.73	09-24-75	QTs	64	15	2.5	H		Log
11N-03W-27DBB1	3505	28	6			10.67	09-22-75					U		
32DBA1	2975		8			+0.16	09-22-75					H		
11N-02W-03DBA1	3260	28	6			17.58	09-22-75					H		
05CDB1	3480	14	10	14	ϕ	12.44	09-22-75					U		
16AAC1	3300	441	16	120	X	150(R)	03-06-69	Tcr	175	1825	52.4	I	200	Log; O.W.
16DBC1	3330	75	6			1.76	09-23-75					H	1	
22DCD1	3360		6			22.48	09-23-75					S	1	
27ADB1	3385	493	16	31	X	18(R)	05-05-73	QTs	360	400	2.2	I	30	Log
11N-01W-12BCC1	3490	210	6	65	X	43.73	09-24-75					H	½	
23ABC1	3525	200	6	20	X	1.72	09-24-75					S	1½	
25CCC1	3590		4			25.31	09-24-75					H		
35DAD1	3620		3			10.85	09-24-75					H	⅓	
10N-05W-01BAD1	2170	60	6		P	31.67	06-11-74	QTs				H	½	
02DCC1	2190		6			61.80	09-25-75	QTs				H	2	
04CAD1	2114	25	6			15.17	09-25-75	QTs				I	3	
05DCD1	2106	20	2½		T	11.64	06-13-74	QTs				I	½	
08DDA1	2114	37	6	24	P	13.39	09-24-75	QTs	20	30	2.73	H	½	Log
09ADC1	2110	30	12	20	P	8.54	09-25-75	QTs	20	50	5.0	I	5	Log
09CAD1	2125	28	16	20	P	16.11	09-24-75	QTs				I	20	Log
10BCC1	2115	24	6	24	ϕ	16.15	09-25-75	QTs				I	3	
11AAC1	2160	30	8	26	X	13.75	09-25-75	QTs				H	1	
12BBD1	2162	125	6	73	X	16.30	06-11-74	QTs	124	30	3.75	H	2	Log
15DDC1	2112	42	16			8.75	06-13-74	QTs				I	10	
16BBC1	2114	25	72	25	ϕ	18.40	08-05-75	QTs				U		Well destroyed 9-75
16DBA1	2120	26	72	25	ϕ	14.69	09-24-75	QTs				I	10	
17ACC1	2108	27	8	27	ϕ	13.72	09-24-75	QTs	27	20	10.0	H	1½	Log; O.W.
20AAA1	2115	20	8			18.05	09-24-75	QTs				H	½	
21AAB1	2110	30	8	30	ϕ	14.89	09-24-75	QTs				H	2	
22ADB1	2108	75	6	40	X	7.88	09-25-74	QTs				H	1	
23CBA1	2115	20	2		T	10.48	09-25-75	QTs				H	3	
24BBC1	2120	14	30	14	ϕ	8.90	09-25-75	QTs				U		
25ACD1	2175	65	8		X	53.41	09-25-75	QTs				H	¾	
25CBC1	2116	18	72	18	ϕ	10.23	09-25-75	QTs				I	½	
36AAB1	2164	16	2½			1.28	09-25-75	QTs				H		

Basic Data Table A – continued

Well Number	Altitude of land surface, feet above mean sea level	Reported depth of well, feet below land surface	Casing		Well finish	Water Level		Principal aquifer	Depth to principal aquifer, feet below land surface	Reported specific capacity ([gal/min]/ft of drawdown)	Reported discharge (gal/min)	Use of water	Horsepower	Remarks
			Diameter (inches)	Feet below land surface to first perforation		Feet below land surface	Date measured							
10N-04W-01DDA1	2200		4			21.71	07-29-74	QTs				H		
02BDB1	2215		6			28.69	09-25-75	QTs				H	½	
03BBA1	2200		6			30.94	09-25-75	QTs				H	½	
03DBC1	2195		8			22.85	09-25-75	QTs				H	1	
04DCC1	2230		6			20.14	07-29-74	QTs				H	2	
05DDD1	2210		4			22.47	09-26-75	QTs				H	½	
06ADD1	2185	460	6			+48.72	09-22-75	QTs				S		Flows
06CAA1	2130		4			11.55	09-26-75	QTs				H	¾	
07ADA1	2228	257	12	53	F	33(R)	01-23-64	QTs	53	1080	9.23	I	50	Log
07DDA1	2230		12			44.40	09-25-75	QTs				U		
17ACC1	2275		6			70.60	09-25-75	QTs				H	½	
17CDD1	2335		4			145.09	09-25-75	QTs				S	¾	
18AAA1	2300	310	14	150	P	60(R)	03-13-64	QTs	180	1647	16.5	I	75	Log
19ACA1	2390		4			220.66	09-25-75	QTs				S	1½	
30ABB1	2555	635	6	50	X	319.65	09-25-75	QTs	403	5		S		Log

To convert feet to meters multiply by 0.3048.
To convert inches to millimeters multiply by 25.4.
To convert gallons per minute to liters per second multiply by 0.06309.

Evapotranspiration, which includes evaporation from land and water surfaces and transpiration from vegetation, occurs mainly in the lowlands and valleys where the potentiometric surface is near or above the land surface.

Ground-water pumping is a means of discharge in many parts of the Weiser River basin. Hydrographs for selected wells (fig. 5) located in the lowlands near Council, Indian Valley, Midvale, and Weiser show the effect of ground-water pumping.

Subsurface outflow from the Weiser River basin occurs near Weiser. The outflow is through the sand and gravel of the sedimentary-rock aquifer and is toward the Snake River (fig. 6). An estimate of the amount of subsurface outflow to the Snake River was made using available data and the following equations:

$$T \simeq 0.1337 \times SC \times 2{,}000 \qquad (1)$$

(Thomasson and others, 1960), and

$$Q = TIL \qquad (2)$$

(Ferris and others, 1962), where

T = transmissivity, in feet squared per day,

SC = specific capacity, in gallons per minute per foot of drawdown,

Q = discharge, in cubic feet per day,

I = hydraulic gradient, in feet per mile, and

L = width, in miles, of the cross section through which the discharge occurs.

Assuming an average specific capacity (SC) of 10 (gal/min)/ft of drawdown (2.06 [L/s] /m of drawdown) as estimated from drillers' logs, a transmissivity (T) of 2,670 ft^2/day (248 m^2/day) is calculated using equation 1. Using a transmissivity (T) of 2,670 ft^2/day (248 m^2/day), a hydraulic gradient (I) of 13 ft/mi (6.4 m/km) as determined from wells near Weiser, and a cross-section width (L) of 17 mi (27 km), the subsurface outflow from the Weiser River basin is 590,000 ft^3/day (16,700 m^3/day), or less than 7 ft^3/sec (0.20 m^3/s) using equation 2.

Thermal Water

Thermal ground water is present in several areas of the Weiser River basin. Preliminary chemical and physical data descriptive of thermal water from five springs and four wells in the Weiser River basin were collected by Young and Mitchell (1973). The temperatures of these waters ranged from about 25° to about 90°C, and the discharges ranged from less than 1 gal/min (0.063 L/s) to 431 gal/min (27.2 L/s). The thermal springs issue from basalt or from alluvium in proximity to basaltic outcrops, and all wells are thought to penetrate and receive water from basalt.

The southern part of the Weiser River basin probably has the greatest potential for geothermal exploration and development. Young and Whitehead (1975) studied the Weiser Hot Springs and the Crane Creek Hot Springs areas, located in the southern part of the basin approximately 5 mi (8 km) northwest and 12 mi (19 km) east of Weiser, respectively.

Well Yields

Sufficient ground water for domestic and stock supplies can be obtained almost everywhere in the Weiser River basin. Adequate yields for irrigation and municipal supplies, with the exception of the sedimentary-rock aquifer near Weiser, are probably limited to the basalt aquifers. The sedimentary-rock aquifer near Weiser does yield adequate amounts of water for irrigation.

Yields and specific capacities of wells in the basalt are highly variable. Reported well yields from drillers' logs of wells penetrating the basalt aquifers range from 3 to 1,835 gal/min (0.2 to 122 L/s). Specific capacities determined from drillers' logs range from 0.06 to 52.4 (gal/min)/ft of drawdown (0.01 to 11.0 [L/s] /m of drawdown). However, a yield of 1 gal/min for each foot of penetration (0.21 L/s for each meter of penetration) (Newcomb, 1959) in the saturated basalt may be a reasonable approximation of the expected yields from these aquifers. Reported yields (basic-data table A) averaged slightly less than 2 gal/min for each foot of penetration (0.4 L/s for each meter of penetration). Several wells completed in basalt in Council, Indian Valley, Cambridge, Midvale, and the area near Crane Creek Reservoir yield adequate amounts of water for irrigation and municipal needs.

Reported yields from the sedimentary-rock aquifers range from 1 to 1,647 gal/min (0.063 to 104 L/s) (basic-data table A). Specific capacities of wells in these aquifers are highly variable and range from less than 0.01 (gal/min)/ft of drawdown (.002 [L/s] /m of drawdown) for wells penetrating finer grained materials to 61.2 (gal/min)/ft of drawdown (12.6 [L/s] /m of drawdown) for wells penetrating a sand and gravel aquifer near Weiser. The yields of wells in the sedimentary-rock aquifers are directly related to the thickness of saturated sand and gravel encountered in the wells; for example, the thicker the sand and gravel beds in the saturated material, the larger the well yields.

Well Construction and Development

Proper well construction and development are essential to insure optimum well yields, prevent caving, and obtain maximum economic well life. In the basalt aquifers, the material surrounding the well, in most instances, is stable, and the water enters the well directly from fractures and joints. However, in the sedimentary-rock aquifers and interbedded sedimentary rocks or rubble zones of the basalt aquifers where water is derived from unconsolidated materials, a casing is necessary to support the well. The casing should be perforated or a well screen should be installed to admit water to the well. If perforations or screens are installed at all permeable water-bearing zones penetrated, yield will be maximized. Perforated casing or well screens should generally not be installed adjacent to silt, clay, or fine sand because only small quantities of muddy water would be produced.

The optimum size of the perforations or screen openings depends on the grain size of the aquifer materials. The perforations or screen openings should be sized to allow at least 50 percent of the fine-grained aquifer materials to pass through the openings. This will then remove the finer grained materials, leaving the coarse aquifer materials around the well to form a more permeable zone.

Another method of well construction involves the use of an artificial gravel envelope around the perforated or screened intervals of the well. The gravel pack increases the effective diameter of the well and prevents the fine-grained material from moving into the well. The size of the gravel used in packing a well is dependent upon the size of the aquifer materials. Generally, the size of gravel used is four times larger than the coarser 25 percent of the aquifer materials. The size of perforations or screen openings should be about three-fourths of the size of the gravel used to pack the well.

After installation of perforations, screens, or gravel pack, the well should be developed to remove the fine-grained aquifer materials from around the perforated or screened intervals. Two common methods of well development are pumping and surging.

Development by pumping is accomplished by initially pumping the well at a low discharge rate until the water becomes clear. The well is then pumped at a higher discharge until the water once again clears. This procedure is continued until the maximum discharge rate is reached. Pumping is then stopped and the water level in the well is allowed to recover. The above outlined pumping cycle is then repeated until concentrations of fine-grained materials in the water are reduced to an acceptable level.

Surging the well requires the use of a surge block or plunger. The block is operated above the perforated or screened interval and forces water in and out of the well through the perforations. This action pulls the finer grained aquifer material into the well where they can be removed by a bailer. This process should be continued until all fine-grained material is removed.

Careful well development increases the likelihood of obtaining maximum well yield with minimum drawdown. A properly developed well will usually have a longer life.

Ground-Water Contribution to Surface-Water Flow

Base flow of streams is that part of streamflow which is derived from ground-water discharge. Ground-water discharges to streams in the Weiser River basin by means of springs, seeps, and seepage directly into the main stream channels—drainage directly from the rock formations or soil horizons. The effect of ground-water discharge to a stream is usually identifiable by the specific conductance of the stream water. As the specific conductance of the stream nears that of the ground-water body, the ground-water contribution to the stream approaches 100 percent of the streamflow.

Specific-conductance values and the corresponding discharges for the Middle Fork Weiser River and Scott Creek are shown in figure 7. Ground-water contribution to the Middle Fork Weiser River approaches 100 percent of the streamflow during the period of relatively constant specific-conductance values (mid-summer to early spring). The periods of lower specific conductance and higher discharges indicate periods of snowmelt runoff.

Scott Creek, although not a perennial stream, is also influenced by ground-water discharge. However, the ground-water system is not sufficient to maintain streamflow throughout the summer months.

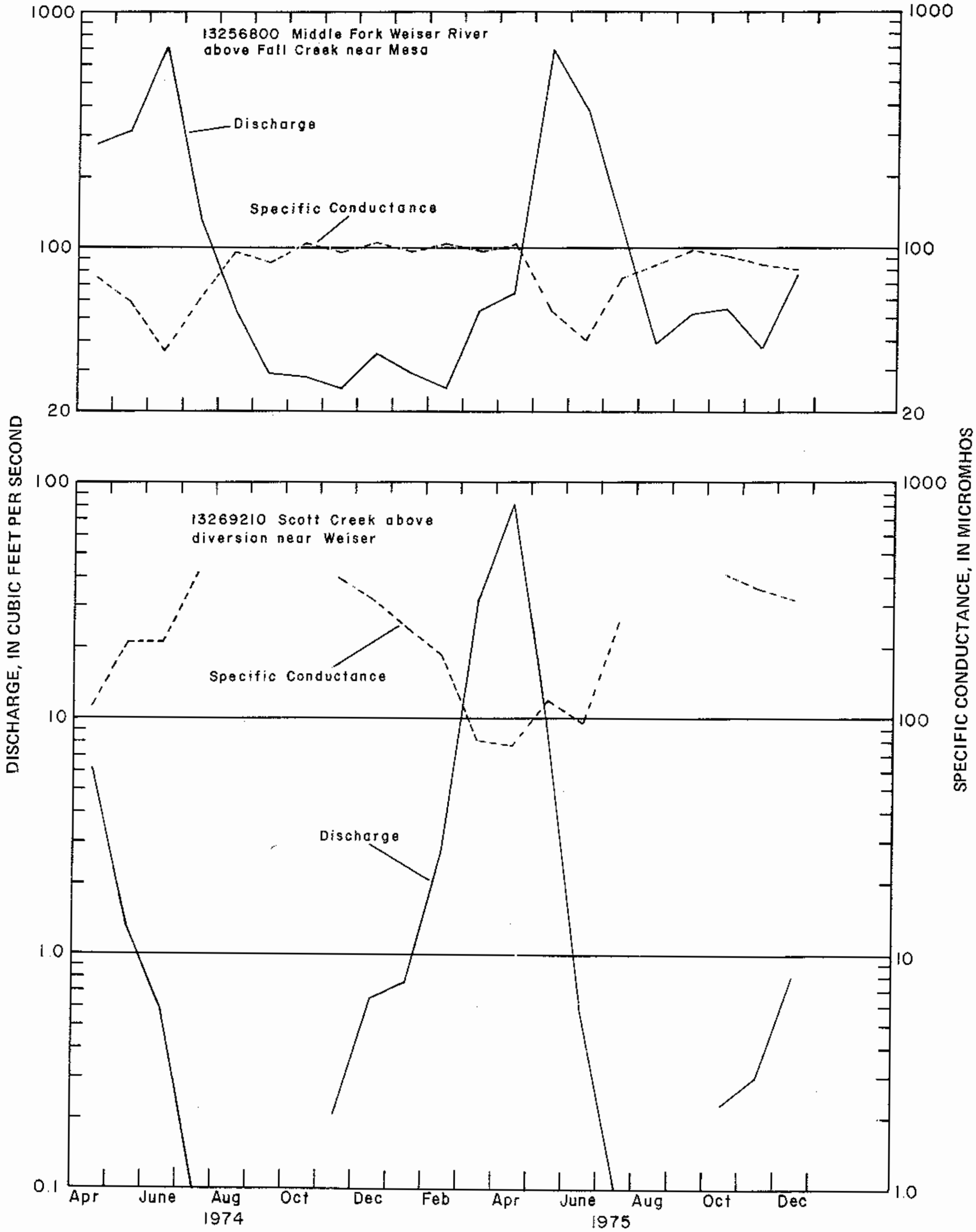


FIGURE 7. Discharge and specific conductance of selected streams in the Weiser River basin.

SURFACE WATER

The largest source of readily available water in the Weiser River basin is surface water. The collection of streamflow data to describe this resource began in 1890 with the establishment of the gaging station Weiser River near Weiser. Since then, 38 gages have been operated from time to time to record daily flows, and two crest-stage gages have been used to record peak flows. At present, the stream-gaging network in the basin consists of three continuous-recording gages and one crest-stage gage. These gages are West Branch Weiser River near Tamarack, Weiser River near Cambridge, Weiser River near Weiser, and Dixie Creek near Cambridge (basic-data table B and fig. 8).

During this study, April 1974 through December 1975, the gage Weiser River at Tamarack was reactivated to provide continuous flow record. In addition, monthly discharge measurements were made at 18 sites to aid in defining the distribution of flow throughout the basin. Streamflows were measured at 20 other sites during periods of high flow when sediment transport was also high. Some of these measurement sites were at discontinued gaging station locations. Gaging stations, measurement sites, basin characteristics, and periods of streamflow records are listed in basic-data table B. Locations of the stations and sites are shown in figure 8. Discharge measurements made during this study and concurrently collected water-quality data are listed in basic data tables G and H. Discharge measurements made at other miscellaneous sites in the basin through 1967 were summarized by Decker and others (1970). Subsequent miscellanous measurements in the basin have been published yearly in "Water Resources Data for Idaho, Part 1, Surface-Water Records."

Annual Discharges

The gaging station Weiser River near Weiser measures most of the water flowing from the basin and has the longest record in the basin. Thirty-two complete water years of record have been collected intermittently at this gage, beginning with the 1896 water year and continuing through the 1975 water year. The mean annual discharge (long-term average discharge) for these 32 years is 1,170 ft^3/s (33.2 m^3/s), or about 850,000 acre-ft/yr ($1.05 \times 10^9 m^3/yr$).

The record for Weiser River near Weiser was extended using data from other stations to improve the evaluation of long-term trends in the streamflow of the basin. The stream-gaging stations Crane Creek at mouth near Weiser and Weiser River above Crane Creek near Weiser operated concurrently for 31 years when the station Weiser River near Weiser was not in operation. As the total drainage area of these two stations is 99.2 percent of that at Weiser River near Weiser gage, and as no significant inflow occurs between the two

BASIC-DATA TABLE B

GAGING STATIONS, BASIN CHARACTERISTICS, AND PERIODS OF RECORD IN THE WEISER RIVER BASIN

Station number	Station name	Drainage area (mi^2)	Mean altitude, feet above mean sea level	Periods of record D: Daily or montly figures (calendar year) P: Annual peaks (water year) M: Miscellaneous measurements (calendar year)
13251300	West Branch Weiser River near Tamarack	3.96	4,900	D: 1959-present.
13251490	Weiser River above mill pond at Tamarack			Water samples collected during 1974-75 study period.
13251500	Weiser River at Tamarack	36.5	4,600	M: 1914; D: 1936-71, 1974-75.
13252000	Weiser River near Starkey	66.6	-	D: 1937-39.
13252500	East Fork Weiser River near Council	2.00	6,920	M: 1931; D: 1923-43.
13253000	East Fork Weiser River near Starkey	30.4	5,640	D: 1937-39; M: 1951, 1974.
13253500	Weiser River at Starkey	106	5,100	M: 1920, 1922; D: 1939-49; M: 1955, 1974.
13253850	West Fork Weiser River near Tamarack	24.4	5,200	M: 1974-75.
13253900	Lost Creek above reservoir near Tamarack	25.1	5,540	M: 1912, 1921, 1974.
13254000	Lost Valley Reservoir near Tamarack	29.4	-	D: 1924, 1926-66.
13254500	Lost Creek near Tamarack	29.4	-	D: 1910-14, 1920-21; M: 1922; D: 1924-69.
13255000	West Fork Weiser River near Fruitvale	86		D: 1910-13, 1919-25, 1937-49.
13255050	West Fork Weiser River near Fruitvale	87.7	4,020	M: 1974-75.
13255200	Mill Creek near Council	8.22	5,460	M: 1912, 1974-75.
13255280	North Hornet Creek near Council	31.2	4,650	M: 1974-75.
13255500	Hornet Creek near Council	108	4,660	D: 1937-43; M: 1955, 1974-75.
13255750	Cottonwood Creek above diversions near Council	18.5	5,780	M: 1974-75.
13255800	Cottonwood Creek near Council	20.7	5,480	M: 1938, 1974-75.
13256000	Weiser River near Council	390	4,680	D: 1937-53; M: 1955, 1974.
13256500	Mesa Orchards Canal near Mesa	-		D: 1924, 1928-55.
13256800	Middle Fork Weiser River above Fall Creek near Mesa	64.5	5,720	M: 1974-75.
13257000	Middle Fork Weiser River near Mesa	86.5	5,430	D: 1910-13, 1919-21, 1937-49; M: 1955.
13257500	Johnson Creek below Johnson Park, near Council	4.81	6,290	D: 1941-49.
13257600	Johnson Creek near Goodrich	21.0	5,030	M: 1974-75.
13257700	Dry Creek at Goodrich	7.37	3,680	M: 1974-75.
13257800	Goodrich Creek near Goodrich	15.3	5,630	M: 1974-75.
13258000	Bacon Creek near Mesa	0.71		D: 1944-49.
13258500	Weiser River near Cambridge	605	4,650	M: 1914; D: 1939-present.
13259000	Rush Creek powerplant tailrace near Cambridge		-	D: 1929-30.
13259500	Rush Creek at Cambridge	30.4	5,020	D: 1938-43; M: 1955, 1974-75.
13259800	Spring Creek at Cambridge	16.8	3,500	M: 1938, 1975.
13260000	Pine Creek near Cambridge	54	4,770	D: 1938-62; M: 1964-65, 1974-75.

13260090	West Pine Creek near Cambridge	23.9	4,630	M: 1974-75.
13260300	Pine Creek at mouth at Cambridge	83.5	4,730	M: 1938, 1974-75.
13260500	Little Weiser River at Ruby Ranch near Indian Valley	79.0	4,800	D: 1923; M: 1974-75.
13261000	Little Weiser River near Indian Valley	81.9	-	D: 1920-21, 1923-27, 1938-71.
13261500	Little Weiser River near Cambridge	187	-	D: 1920-26.
13261600	Little Weiser River near mouth near Cambridge	204	3,320	M: 1955-56, 1974-75.
13261670	Dixie Creek near Cambridge	11.0	3,240	P: 1973-present (M: 1974-75).
13261880	Keithly Creek above diversions near Midvale	13.7	5,110	M: 1974-75.
13261962	Keithly Creek at mouth near Midvale	52.7	3,830	M: 1974-75.
13262000	Sage Creek near Midvale	5.56		D: 1913.
13262500	Sommercamp Creek near Midvale	2.5	-	D: 1913.
13263000	Miller Creek near Midvale	0.96		D: 1913.
13263150	Banner Creek near Midvale	8.95	3,200	M: 1974-75.
13263500	Weiser River above Crane Creek near Weiser	1,160	-	D: 1920-52.
13263700	Crane Creek above reservoir near Crane	116	3,810	M: 1955, 1975.
13263750	Hog Creek near Crane	27.2	3,340	M: 1955, 1975.
13263800	Mill Creek near Crane	12.2	3,600	M: 1955, 1974-75.
13263930	Tennison Creek near South Crane School	12.1	3,830	M: 1974-75.
13263950	South Fork Crane Creek near Crane	48.2	3,670	M: 1955, 1970, 1974-75.
13264000	Crane Creek Reservoir near Midvale	242	-	D: 1923-69.
13264500	Crane Creek near Midvale	242	-	M: 1919-20, 1922; D: 1923-69.
13265000	Crane Creek Irrigation District Canal near Weiser	-	-	D: 1920-26.
13265500	Crane Creek at mouth near Weiser	288	-	D: 1920-73; M: 1974-75.
13266000	Weiser River near Weiser	1,460	-	D: 1890-91, 1894-1904, 1910-14; M: 1919-20; D: 1953-present.
13266500	Galloway Canal near Weiser	-	-	D: 1920-69.
13266550	Cove Creek near Weiser	36.9	3,230	M: 1974-75.
13266850	Mann Creek above reservoir near Weiser	53.5	4,970	M: 1974-75.
13266900	Mann Creek Reservoir near Weiser	56.0		D: 1967-70.
13267000	Mann Creek near Weiser	56.0	4,860	D: 1911-13, 1920, 1937-62; P: 1962-65.
13267050	Mann Creek below Mann Creek Dam near Weiser	56.0	4,860	D: 1967-70.
13267100	Deer Creek near Midvale	4.60	3,210	P: 1962-71.
13267400	Weiser River at Weiser		-	M: 1935, 1969-70, 1974.
13267500	Monroe Creek near Weiser	7.2		D: 1911-12.
13268000	Monroe Creek near Weiser	29.1	-	D: 1911-13.
13268500	Monroe Creek above Sheep Creek near Weiser	30.5	3,800	M: 1938, 1940-45; D: 1945-49; M: 1955, 1970, 1974-75.
13269100	Jenkins Creek near Weiser	17.8	3,270	M: 1974.
13269210	Scott Creek above diversions near Weiser	21.7	3,960	M: 1974-75.
13269228	Hog Creek near Weiser	21.4	3,030	M: 1974-75.

To convert square miles to square kilometers, multiply by 2.59.
To convert feet to meters, multiply by 0.3048.

upper stations and the station Weiser River near Weiser, the combined flow of the two upper stations is virtually the same as at Weiser River near Weiser. The mean annual discharge for 63 years of the period 1896-1975 (32 years, Weiser River near Weiser; and 31 years, Weiser River above Crane Creek near Weiser, plus Crane Creek at mouth near Weiser) is 1,070 ft^3/s (30.4 m^3/s), or 778,000 acre-ft/yr (0.96 x $10^9 m^3/yr$). Three gaging-station records for areas near the basin were used to extend the record at Weiser River near Weiser by linear regression to cover the missing periods, water years 1905 through 1911 and 1915 through 1921. The mean annual discharge for the 77-year period is 1,090 ft^3/s (30.8 m^3/s), or 788,000 acre-ft/yr (0.97 x $10^9 m^3/yr$). The entire extended record is shown in figure 9 along with the mean annual discharges for the various periods of record.

Streamflow as measured at the gaging station Weiser River near Weiser is representative of the surface-water conditions elsewhere in the basin. Other gaging stations on the Weiser River showed variations in annual discharge that are similar. Some of the tributary subbasins exhibit different annual runoff patterns because streamflows are regulated by reservoir impoundments and releases that do not correspond with natural runoff characteristics.

Monthly Discharges

Monthly flow records provide a convenient way of looking at the hydrologic characteristics of a stream, such as the seasonal flow distribution.

Hydrographs of mean monthly discharges (average of all discharges for the same month) for the six Weiser River gaging stations (fig. 10) show how flow is distributed in the Weiser River with respect to time. The monthly mean discharges (average of the daily discharges—average daily rate of flow—that occurred during that particular month) at Weiser River at Tamarack, near Cambridge, and near Weiser, operating during the project are also shown so the data collected during the project period can be compared with long-term means. The figure shows that monthly flows in the Weiser River were generally higher than average during this study, except for the period October 1974 through April 1975. The lower-than-normal flows during the period appear to be the result of lower-than-normal precipitation during the October 1974 through January 1975 segment and lower-than-normal temperatures during the February 1975 through April 1975 segment. National Weather Service Climatological Data Summaries for the period show that the February 1975 through April 1975 segment received above-average precipitation. This, combined with the low temperatures, resulted in the delayed and higher-than-normal runoff peaks in the 1975 water year (12-month period October 1, 1974, through September 30, 1975).

Mean monthly discharge for selected tributaries based on discontinued gaging-station records are shown in figure 11. Four of the tributaries, Middle Fork Weiser River, Pine Creek, Little Weiser River, and Mann Creek, are natural-flow streams and have hydrographs characteristic of such streams. In contrast, the hydrographs for Lost Creek and Crane Creek show influences of reservoir releases. The high flows of Lost Creek in April and May probably indicate a low storage capacity in relation to inflow for Lost Valley Reservoir during these months. If this is true, the high flows are the result of spillage over dam gages. The high summer flows are sustained by releases of water from storage in the reservoir. The Crane Creek stations 13264500 and 13265500 show the high summer flows from reservoir releases. The high-flow segments of the Crane Creek hydrographs in January, February, March, and April are the result of high-flow years when inflow exceeds the capacity of the reservoir and releases are required to prevent flows over the spillway.

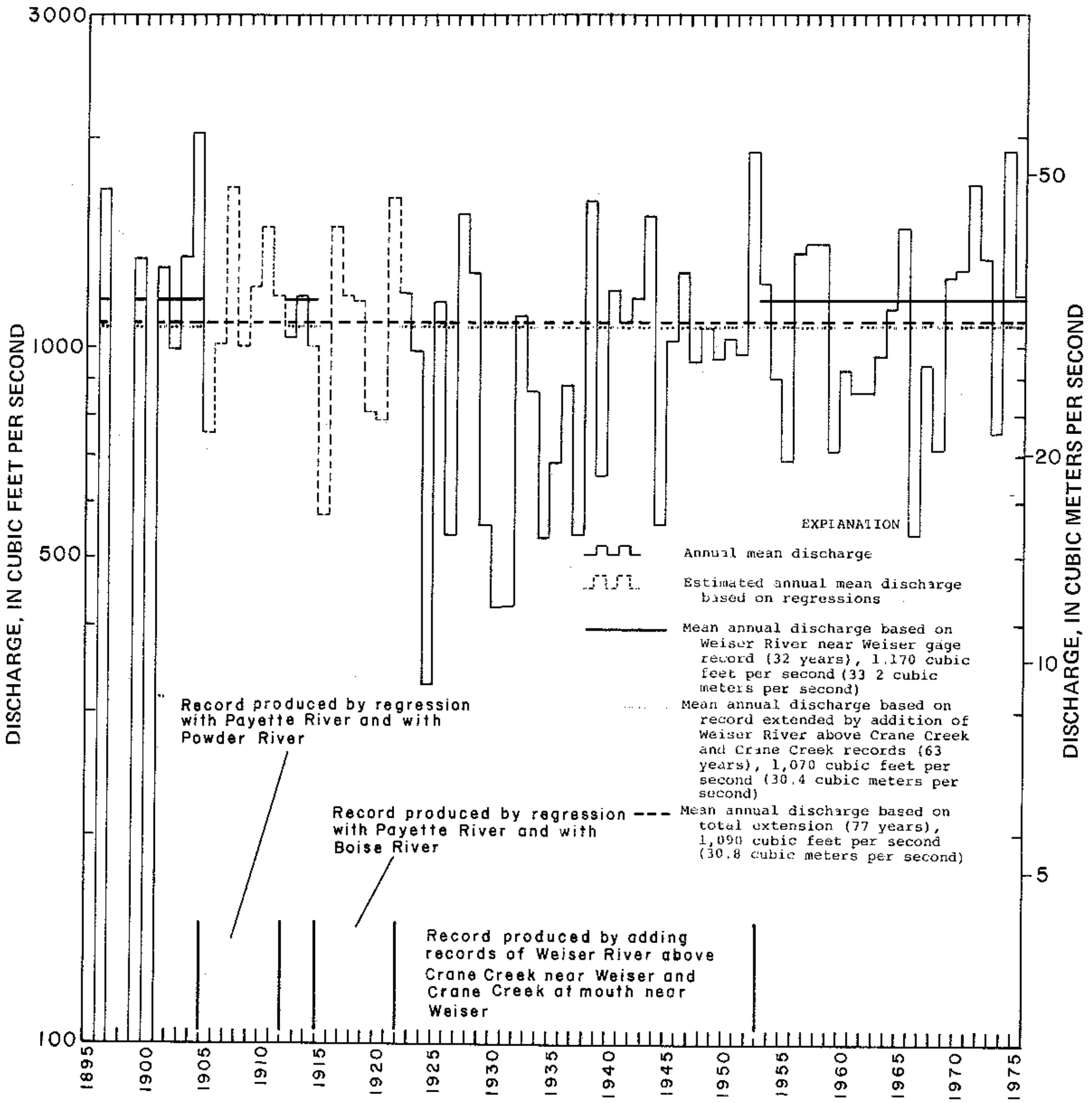
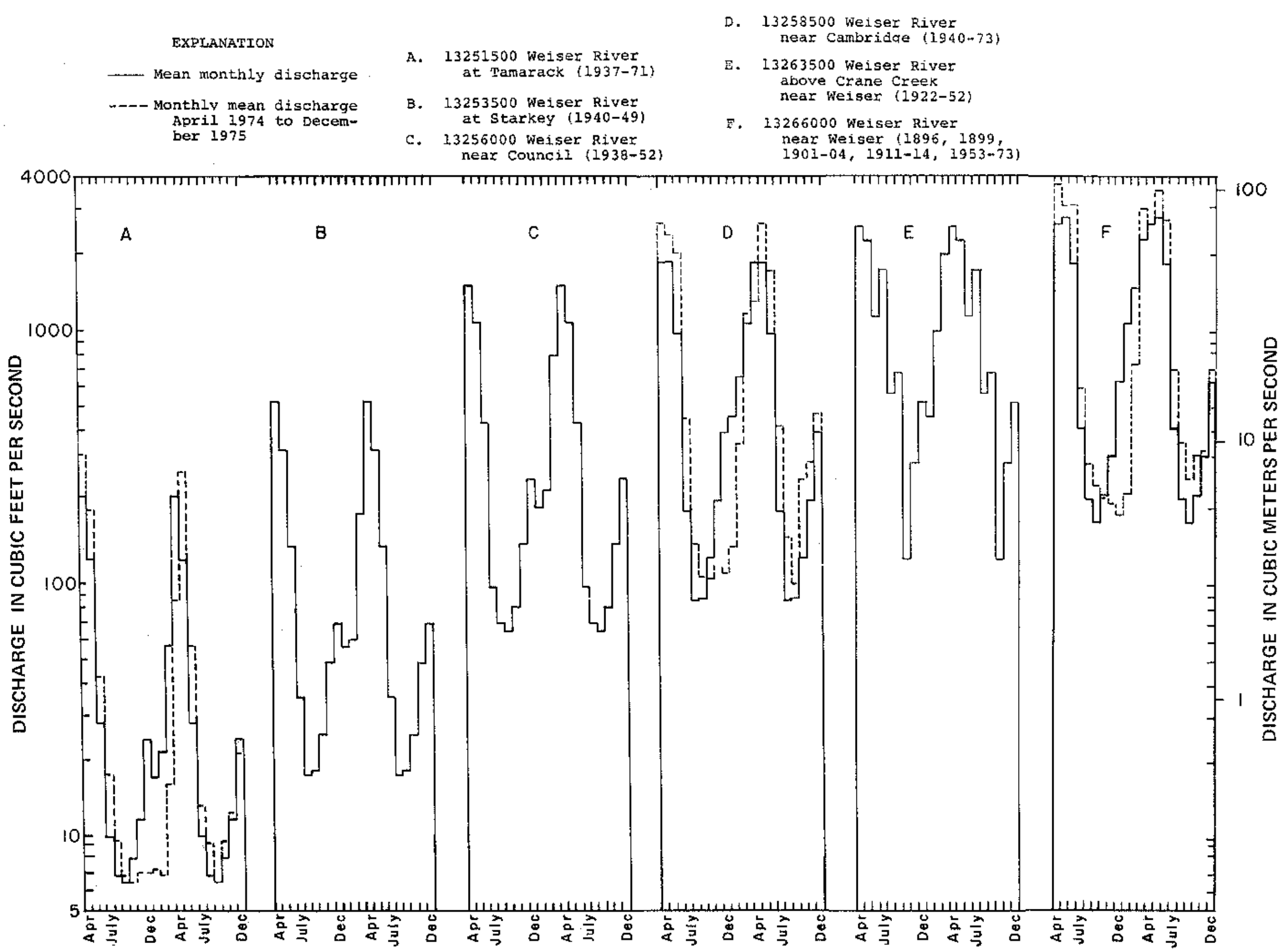


FIGURE 9. Annual mean discharges and mean annual discharges for Weiser River near Weiser.

FIGURE 10. Mean monthly and monthly mean discharge for selected stations on the Weiser River.



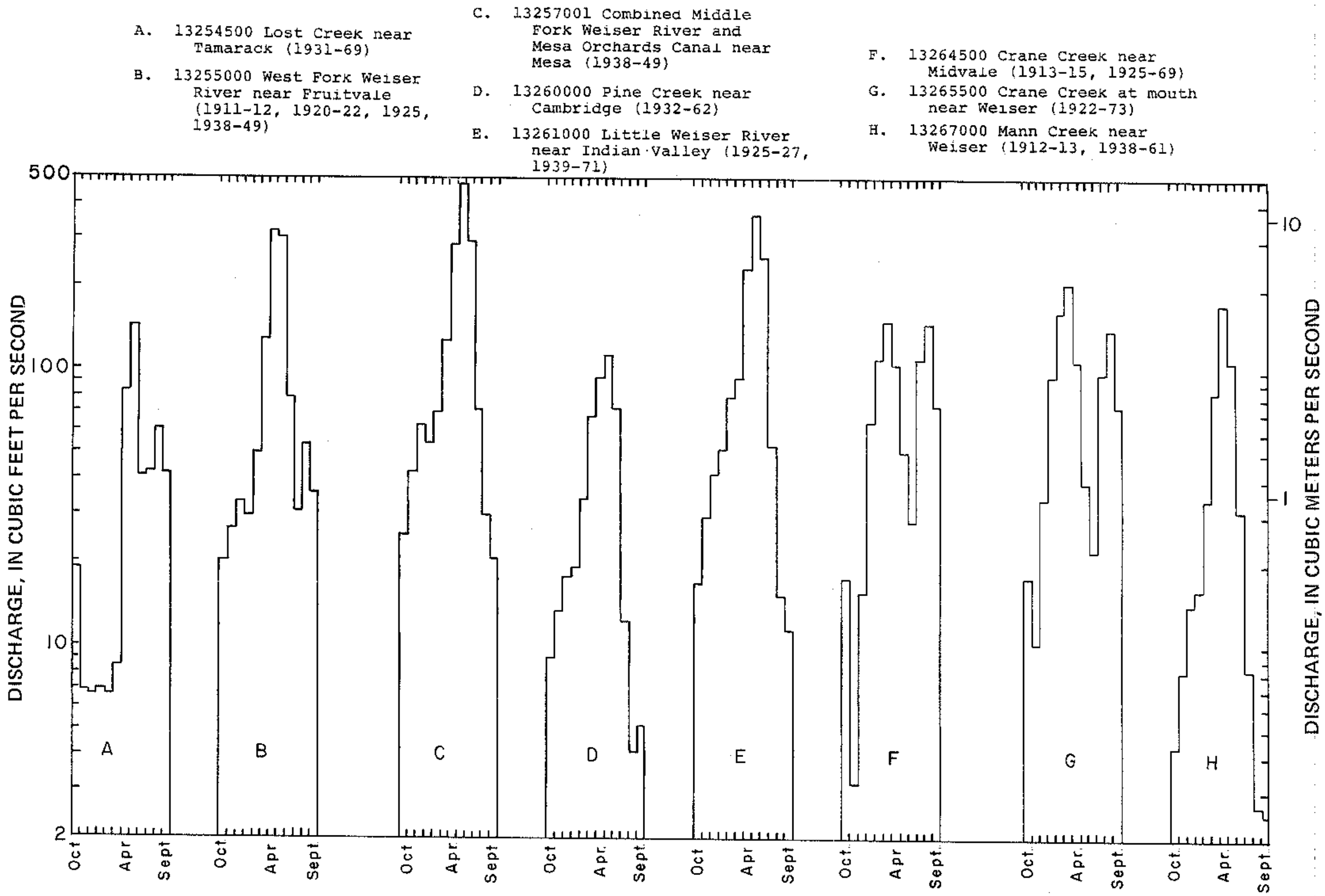


FIGURE 11. Mean monthly discharges for selected tributaries in the Weiser River basin.

The hydrograph for West Fork Weiser River shows some characteristics of both regulated and natural streams. The higher flows during the summer months are the result of releases from Lost Valley Reservoir. During the remainder of the year the stream appears to be only slightly affected by the operation of the reservoir. However, because the drainage area above the reservoir accounts for more than one-third of the area of the subbasin, the effects of storage may be important.

To establish a basis for estimating mean monthly discharge at other sites, the series of discharge measurements made on 18 streams in the Weiser River basin were used to estimate the monthly mean flow by the method proposed by Riggs (1969). This method is a statistical correlation technique utilizing the measured discharges of the ungaged streams concurrently with discharges at a nearby continuous-recording stream-gage site. Two recording stations were used for correlation of streams in the Weiser River basin. The monthly mean discharges for the higher altitude streams were estimated using the reactivated gaging station Weiser River at Tamarack. Estimates for the lower altitude streams were made using the gage on Big Willow Creek near Emmett (not shown in fig. 8—located about 5 mi (8 km) south of study area). Although Big Willow Creek is not within the Weiser River drainage, it drains country similar and adjacent to much of the Lower Weiser River basin. The resultant estimates of monthly mean discharges for the 1975 water year for the 18 selected streams are given in basic-data table C.

The process used to convert the monthly mean discharges to the mean monthly discharge for each stream in basic-data table C is as follows: (1) the monthly mean discharges developed by the Riggs method were used to determine an annual mean discharge for the 1975 water year; (2) the annual mean discharge was then adjusted to a mean annual discharge by assuming the same relation of 1975 annual mean to mean annual exists at the measurement site and the correlation station; (3) the mean monthly discharge for each month was estimated by a percentage of the mean annual flow for each month as determined by nearby station records. The mean monthly discharges for each stream are also given in basic-data table C. In addition, the mean monthly and mean annual runoff (runoff shows the depth in inches to which the drainage area would be covered if all the streamflow for a given period was uniformly distributed) for each stream have been computed and are also given in the same basic-data table. Bar graphs depicting the mean monthly runoffs of the selected tributaries and at three Weiser River stations are shown in figure 12.

Subbasins within the Weiser River basin exhibit one of two different runoff patterns. The particular pattern depends somewhat on the altitude of the subbasin. The streams in the lower altitudes of the basin normally reach their peak monthly runoff in January and normally can be expected to go dry at least 1 month of the year (some are dry about 9 months of the year), while the streams in the higher altitudes of the basin have peak monthly runoff in April and May and flow year round.

Runoff from the two different areas is also shown by the bar graphs for the Weiser River stations. For Weiser River at Tamarack in the northern part of the basin, high monthly runoff occurs in April and May. High monthly runoff near the middle of the basin, as shown by the station Weiser River near Cambridge, occurs from March through June. High monthly runoff in the southern part of the basin, as shown by the station Weiser River near Weiser, occurs from January through June.

The mean annual runoff estimates computed for the monthly measurement sites and listed in basic-data table C are also shown in figure 12. The runoff data used in this map were supplemented by data from gaging-station records wherever possible.

BASIC-DATA TABLE C

ESTIMATES OF STREAMFLOW CHARACTERISTICS FOR THE WEISER RIVER BASIN

(Discharge in cubic feet per second, runoff in inches)

Station number and name			Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual 1975	Mean annual	Mean annual runoff
13253850	West Fork Weiser River near Tamarack	Monthly mean 1975	2.3	3.0	3.6	3.0	2.8	9.6	50	284	49	6.1	3.6	2.3	35		
		Mean monthly	7.8	12	18	14	19	44	157	115	35	10	6.1	6.3		37	
		Mean monthly runoff	.37	.56	.86	.68	.82	2.1	7.2	5.4	1.6	.47	.29	.29			21
13255200	Mill Creek near Council	Monthly mean 1975	4.2	4.7	6.1	4.9	4.1	6.8	17	33	64	16	7.2	8.6	15		
		Mean monthly	2.8	4.9	7.4	6.4	8.2	15	33	55	33	8.5	3.4	2.4		15	
		Mean monthly runoff	.40	.67	1.0	.89	1.0	2.1	4.5	7.7	4.4	1.2	.47	.32			25
13255280	North Hornet Creek near Council	Monthly mean 1975	.59	1.3	1.4	1.1	1.7	31	168	79	6.4	1.8	.04	.12	24		
		Mean monthly	5.5	8.5	13	10	14	31	110	80	24	7.0	4.3	4.4		26	
		Mean monthly runoff	.20	.31	.48	.37	.45	1.1	4.0	3.0	.87	.26	.16	.16			11
13255750	Cottonwood Creek above diversions near Council	Monthly mean 1975	3.2	3.2	4.4	4.4	4.3	19	50	120	206	23	15	4.5	38		
		Mean monthly	7.5	13	20	17	22	40	89	147	87	23	9.0	6.3		40	
		Mean monthly runoff	.47	.79	1.2	1.1	1.2	2.5	5.3	9.2	5.3	1.4	.56	.38			29
13256800	Middle Fork Weiser River above Fall Creek near Mesa	Monthly mean 1975	29	26	34	29	26	62	65	326	618	115	87	60	123		
		Mean monthly	24	42	64	55	71	128	286	490	281	73	29	20		129	
		Mean monthly runoff	.43	.73	1.1	.98	1.1	2.3	4.9	8.5	4.9	1.3	.52	.35			27
13257600	Johnson Creek near Goodrich	Monthly mean 1975	3.6	3.9	4.3	5.3	29	37	48	86	123	15	4.6	4.5	30		
		Mean monthly	6.4	10	15	15	24	39	74	107	70	15	5.3	4.3		32	
		Mean monthly runoff	.35	.54	.81	.83	1.2	2.1	3.9	5.9	3.7	.83	.29	.23			21
13257700	Dry Creek at Goodrich	Monthly mean 1975	0	0	0	0	8.4	54	19	11	.50	0	0	0	7.7		
		Mean monthly	0	0	0	0	22	24	17	4.9	3.5	0	0	0		5.9	
		Mean monthly runoff	0	0	0	0	3.4	3.6	2.6	.77	.53	0	0	0			11
13257800	Goodrich Creek near Goodrich	Monthly mean 1975	4.1	3.2	3.4	3.7	10	14	25	53	187	29	12	5.9	29		
		Mean monthly	6.0	9.5	14	14	23	36	69	100	66	14	5.0	4.0		30	
		Mean monthly runoff	.45	.69	1.0	1.1	1.5	2.7	5.0	7.5	4.8	1.1	.37	.29			26
13260090	West Pine Creek near Cambridge	Monthly mean 1975	3.7	3.7	4.2	5.3	4.6	51	74	50	62	11	6.0	3.8	23		
		Mean monthly	4.1	7.0	10	11	24	47	86	68	33	6.5	2.1	2.4		25	
		Mean monthly runoff	.20	.33	.48	.64	1.0	2.3	4.0	3.3	1.5	.31	.10	.11			14
13260500	Little Weiser River at Ruby Ranch near Indian Valley	Monthly mean 1975	12	12	15	20	29	106	115	330	694	96	38	18	124		
		Mean monthly	22	37	54	65	101	119	293	457	325	68	20	14		131	
		Mean monthly runoff	.32	.52	.79	.95	1.3	1.7	4.1	6.7	4.6	.99	.29	.20			22
13261670	Dixie Creek near Cambridge	Monthly mean 1975	.01	.01	.03	.13	3.3	77	2.2	.55	.01	.01	0	0	7.0		
		Mean monthly	1.4	2.6	8.0	18	11	11	7.9	2.3	1.6	.82	0	0		5.3	
		Mean monthly runoff	.14	.26	.84	1.8	1.1	1.1	.80	.24	.16	.09	0	0			6.6
13261880	Keithly Creek above diversions near Midvale	Monthly mean 1975	4.9	5.9	7.1	12	1.5	19	30	99	18	5.9	7.9	5.1	18		
		Mean monthly	2.3	3.9	5.6	6.3	13	26	48	38	18	3.6	1.2	1.4		14	
		Mean monthly runoff	.19	.32	.47	.53	1.0	2.2	3.9	3.2	1.5	.31	.10	.11			14
13263150	Banner Creek near Midvale	Monthly mean 1975	.09	.24	.61	3.2	6.3	17	2.8	1.4	.31	.04	0	.01	1.3		
		Mean monthly	.26	.49	1.5	3.3	2.1	2.0	1.5	.42	.30	.16	0	.20		1.0	
		Mean monthly runoff	.03	.06	.19	.42	.24	.25	.18	.05	.04	.02	0	.02			1.5
13263800	Mill Creek near Crane	Monthly mean 1975	0	0	0	0	33	15	.15	0	0	0	0	0	3.8		
		Mean monthly	0	0	0	0	13	13	9.5	0	0	0	0	0		2.9	
		Mean monthly runoff	0	0	0	0	1.1	1.2	.87	0	0	0	0	0			3.2
13263930	Tennison Creek near South Crane School	Monthly mean 1975	0	.01	.69	3.8	15	8.5	5.7	1.6	.26	0	0	0	2.9		
		Mean monthly	0	1.3	3.4	7.6	4.8	4.6	3.4	.97	.70	0	0	0		2.2	
		Mean monthly runoff	0	.12	.33	.72	.41	.44	.32	.09	.06	0	0	0			2.5
13266850	Mann Creek above reservoir near Weiser	Monthly mean 1975	3.4	5.1	7.3	18	43	63	140	237	93	14	5.9	4.9	53		
		Mean monthly	4.2	8.3	14	16	36	82	176	104	29	8.0	2.4	2.4		40	
		Mean monthly runoff	.09	.17	.29	.34	.70	1.8	3.7	2.2	.60	.17	.05	.05			10
13269210	Scott Creek above diversions near Weiser	Monthly mean 1975	0	.22	.97	1.8	1.1	26	50	6.6	.73	.09	0	0	7.3		
		Mean monthly	0	2.8	8.6	19	12	11	8.5	2.4	1.7	.92	0	0		5.6	
		Mean monthly runoff	0	.14	.46	1.0	.57	.60	.44	.13	.09	.05	0	0			3.5
13269228	Hog Creek near Weiser	Monthly mean 1975	0	.10	.70	2.4	5.9	28	6.2	1.6	0	0	0	0	3.7		
		Mean monthly	0	1.5	4.6	10	6.3	6.0	4.5	1.3	0	0	0	0		2.8	
		Mean monthly runoff	0	.08	.25	.54	.31	.32	.24	.07	0	0	0	0			1.8

To convert cubic feet per second to cubic meters per second multiply by 0.02832.
To convert inches to millimeters multiply by 25.4.

Daily Discharges

The gaged daily-discharge record provides the most detailed information commonly available about the flow characteristics of a stream. However, streamflow records of more than a few years' duration contain large masses of data that must be summarized to permit efficient use of the data. A number of data summarizing techniques are available. The two techniques used in this report are conversions of the data into the duration hydrographs and the flow-duration curves. The duration hydrograph is produced by examining the daily discharges for the period of record being considered, determining the highest and lowest flows that have occurred, and the flows that have been exceeded 50 percent of the time. Computer program constraints limit record periods to 9, 19, 29, 39, and 49 years. Thus, not all of the available data were used to generate the duration hydrographs of this report. Figures 13 and 14 illustrate the lowest, highest, and median (50 percent exceeded) flows obtained from this analysis.

The highest median discharges for the six Weiser River stations (shown in fig. 13) occurred in April and May as a result of normal spring snowmelt runoff. However, the highest daily discharges occurred during the period December through February. These discharges are usually the result of rain on a snowpack.

Average lowest discharges for all measurement sites, as indicated by the median line, occur in late summer. The isolated 1-day low discharges on the Weiser River at Tamarack hydrograph (fig. 13) are probably the result of the draining and filling of the log pond at Tamarack. When the pond is flushed, the discharge at the gage is increased. When the pond is filled, the flow is reduced and produces the isolated lows.

Duration hydrographs for selected tributaries are shown in figure 14. The hydrographs for West Branch Weiser River, Middle Fork Weiser River, Little Weiser River, Pine Creek, and Mann Creek are representative of those streams that are not regulated by reservoir storages and releases. All streams but Mann Creek normally peak in April-May, as shown by the median line. The runoff peak (April) of Mann Creek probably occurs early because the stream drains a lower altitude than most of the tributaries shown. Also, the subbasin faces mostly south; therefore, most slopes get sun early in the year, and snow melts earlier.

The duration hydrographs for Lost Creek, West Fork Weiser River, and Crane Creek gaging stations show the effects of regulation. The closer the station to the point of regulation, the more pronounced the effects of regulation. Noticeable effects include long periods of time with the same discharge and periods of no flow. The farther downstream, the less the effects of regulation on the stream. The effects of regulation at the gage on Lost Creek are more apparent than at the downstream station on the West Fork Weiser River. Even though the hydrographs for both stations on Crane Creek exhibit the effects of regulation, the downstream station curves show the lesser effects. A comparison of the curves for both of these stations shows that some flow is generated between the stations.

The flow-duration curve, the second technique, shows the percentage of time that specified discharges have been equaled or exceeded during the period of record examined. The computer program that produces the duration-curve data examines all daily flow data during the period being considered—the entire period of record for this report—and produces the frequency curve without regard to the particular day or year in which a flow occurred. Thus, the duration curve can be used to determine the flow (daily discharge) that is exceeded a specified percent of the time.

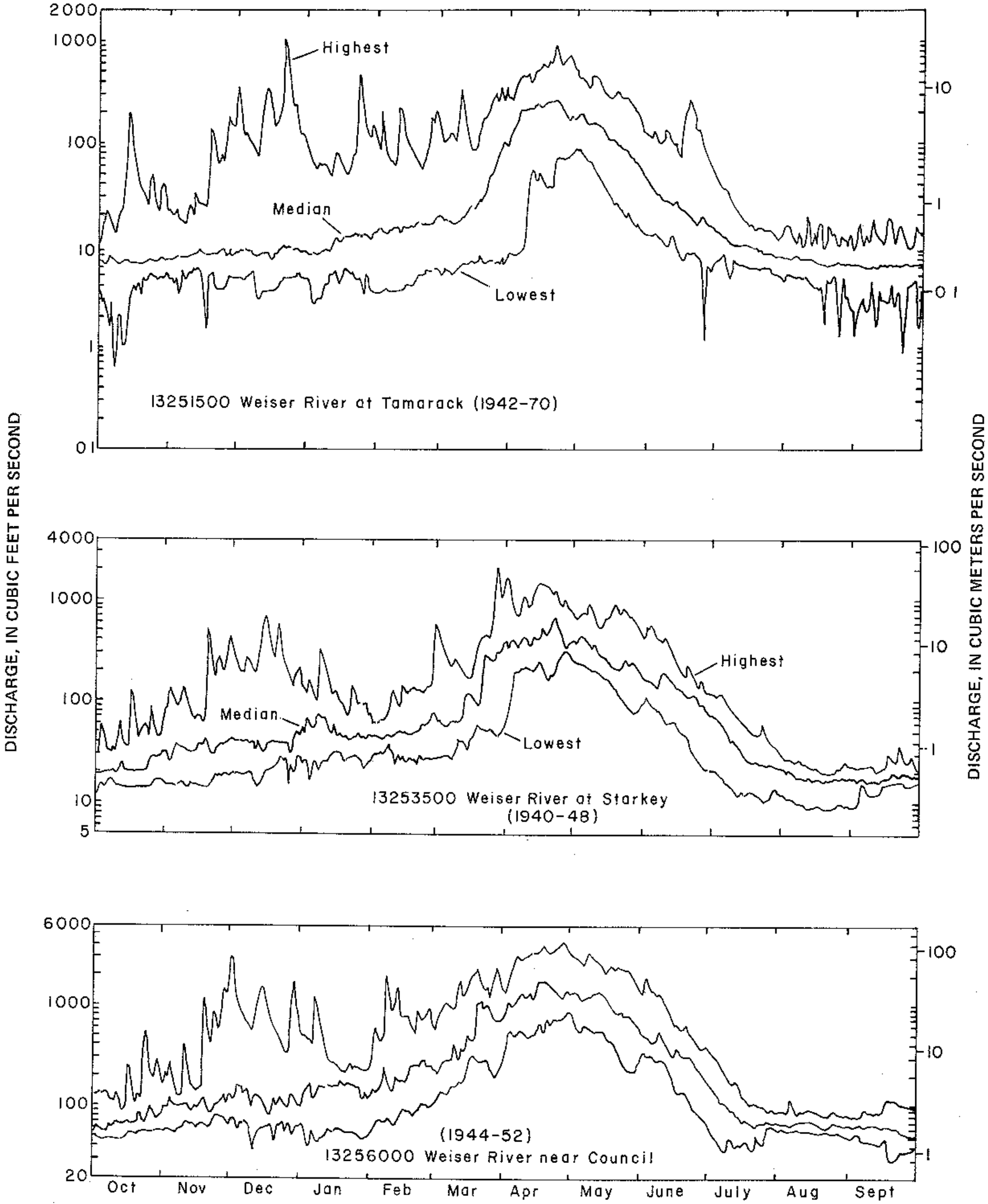


FIGURE 13. Duration hydrographs for selected stations on the Weiser River.

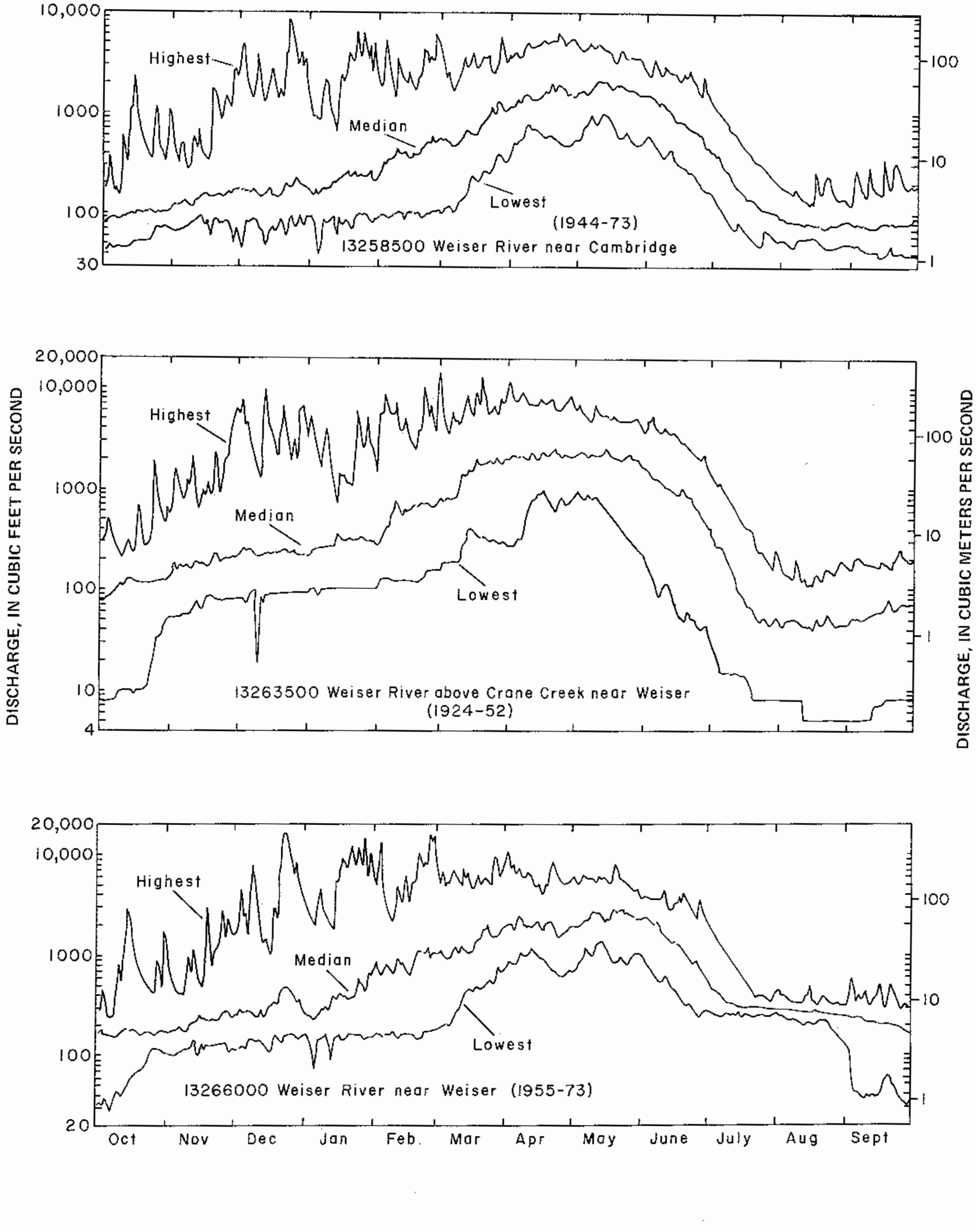


FIGURE 13. Duration hydrographs for selected stations on the Weiser River (continued).

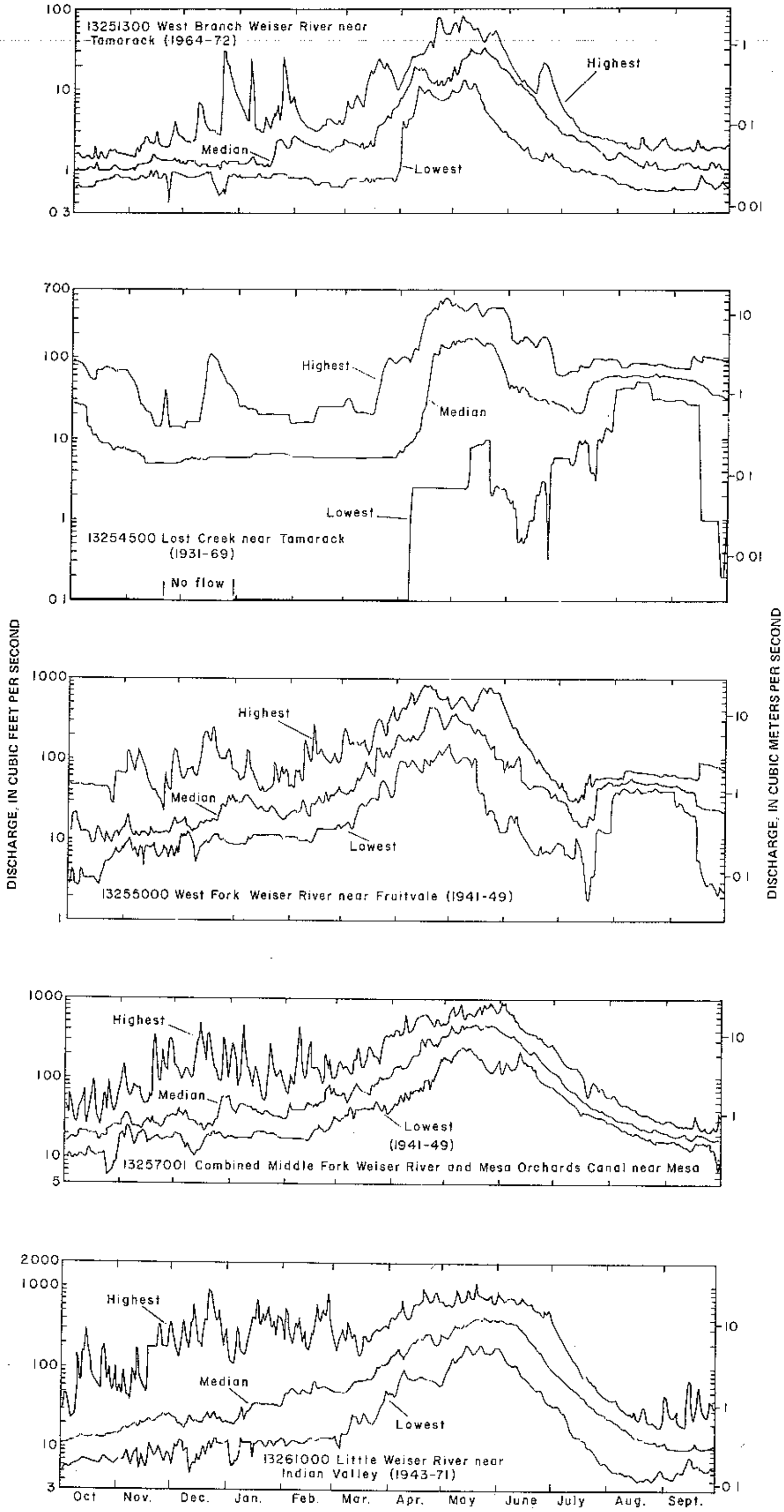


FIGURE 14. Duration hydrographs for selected tributaries in the Weiser River basin.

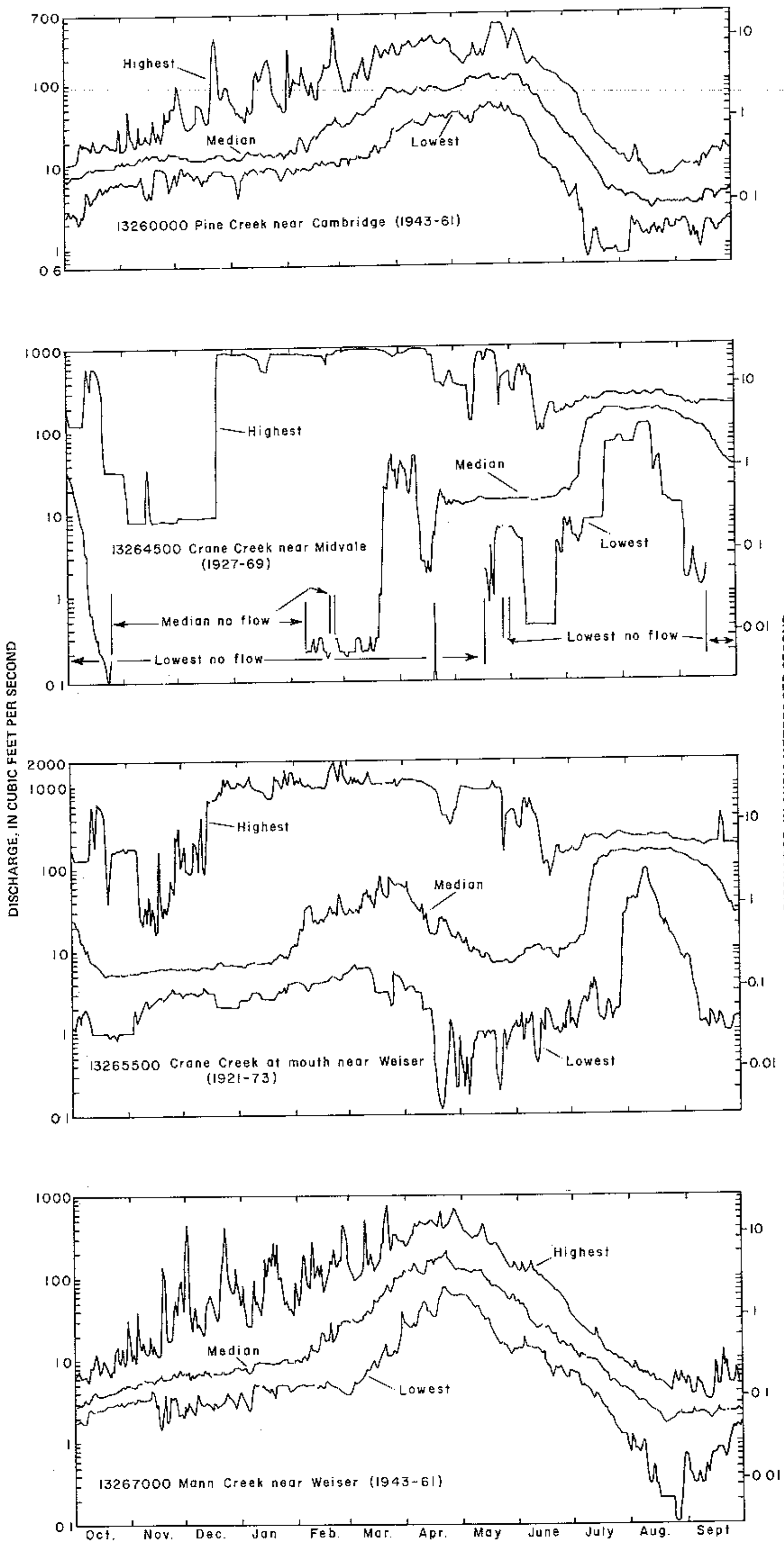


FIGURE 14. Duration hydrographs for selected tributaries in the Weiser River basin (continued).

For example, the duration curves for the Weiser River gaging stations (fig. 15) show that 10 percent of the time (36.5 days a year), the discharge equals or exceeds the following: Weiser River at Tamarack, 136 ft^3/s (3.9 m^3/s); Weiser River at Starkey, 358 ft^3/s (10 m^3/s); Weiser River near Council, 1,180 ft^3/s (33 m^3/s); Weiser River near Cambridge, 1,790 ft^3/s (51 m^3/s); Weiser River above Crane Creek, 2,650 ft^3/s (75 m^3/s); and Weiser River near Weiser, 3,000 ft^3/s (85 m^3/s). This curve generally shows a logical increase in discharge from upstream stations to downstream stations on the Weiser River. The exceptions to this orderly increase are at the lower river stations during low-flow periods. The drop in the curves for Weiser River above Crane Creek and Weiser River near Weiser is probably the result of increased diversions for irrigation from the river combined with a decrease in natural inflow in late summer and early fall.

Flow-duration curves for selected tributaries are shown in figures 16, 17, and 18. With the exceptions of Lost Creek, West Fork Weiser River, and the two Crane Creek stations, the curves represent unregulated tributaries in the basin. Flow-duration curves for all regulated streams, except Crane Creek at mouth, show they can experience some period of no flow, as indicated by the curve leaving the plot (for example, see figure 16; Lost Creek leaves graph at 98 percent). The curve for Crane Creek at mouth (fig. 18) nears the bottom of the graph (0.1 ft^3/s, or 0.0021 m^3/s), but the flow at this station is sustained by spring flow and has never experienced a zero flow in 52 years of record. Other tributaries also have periods of no flow, as shown by figure 18 for Monroe Creek and Mann Creek and figure 17 for Rush Creek. Upstream irrigation diversions on Monroe and Rush Creeks partially affect the discharges of these stations and may account for the no-flow periods. The periods of no flow for Mann Creek may also have been caused by a diversion.

In an area where agriculture depends on streamflow for irrigation water, a more useful flow-duration curve is one which shows the percentage of time that flows are equaled or exceeded during the irrigation season. The irrigation season (May 1 through September 30) flow-duration curves for the Weiser River stations are shown in figure 19. This figure shows that flow in the Weiser River for 10 percent of the time during the irrigation season equals or exceeds 104 ft^3/s (2.9 m^3/s) at Tamarack, 320 ft^3/s (9.1 m^3/s) at Starkey, 1,010 ft^3/s (29 m^3/s) near Council, 2,950 ft^3/s (84 m^3/s) near Cambridge, 2,500 ft^3/s (71 m^3/s) above Crane Creek, and 1,830 ft^3/s (52 m^3/s) near Weiser.

Low-Flow Discharge

Low-flow characteristics of a stream are important in determining the adequacy of streamflow to supply water for irrigation, industrial, and municipal needs, to maintain fish populations, and to remove wastes during critical low-flow periods. The low-flow data presented in this section were derived from gaging-station records where the period of record was 10 years or more, or by correlation with nearby stations using techniques given by Riggs (1973).

Low flows refer to the lowest average flow for periods of 1 day of the year, 3 consecutive days of the year, 7 consecutive days of the year, and 14 consecutive days of the year. The flows used are the average for the indicated period and generally are reported in cubic feet per second. Thus, a 7-day low flow of 20 ft^3/s (0.6 m^3/s) means that during the 7-day period, daily discharge averaged 20 ft^3/s (0.6 m^3/s). In addition to a flow period, recurrence intervals are also reported in discussing low-flow characteristics. For example, the 7-day,

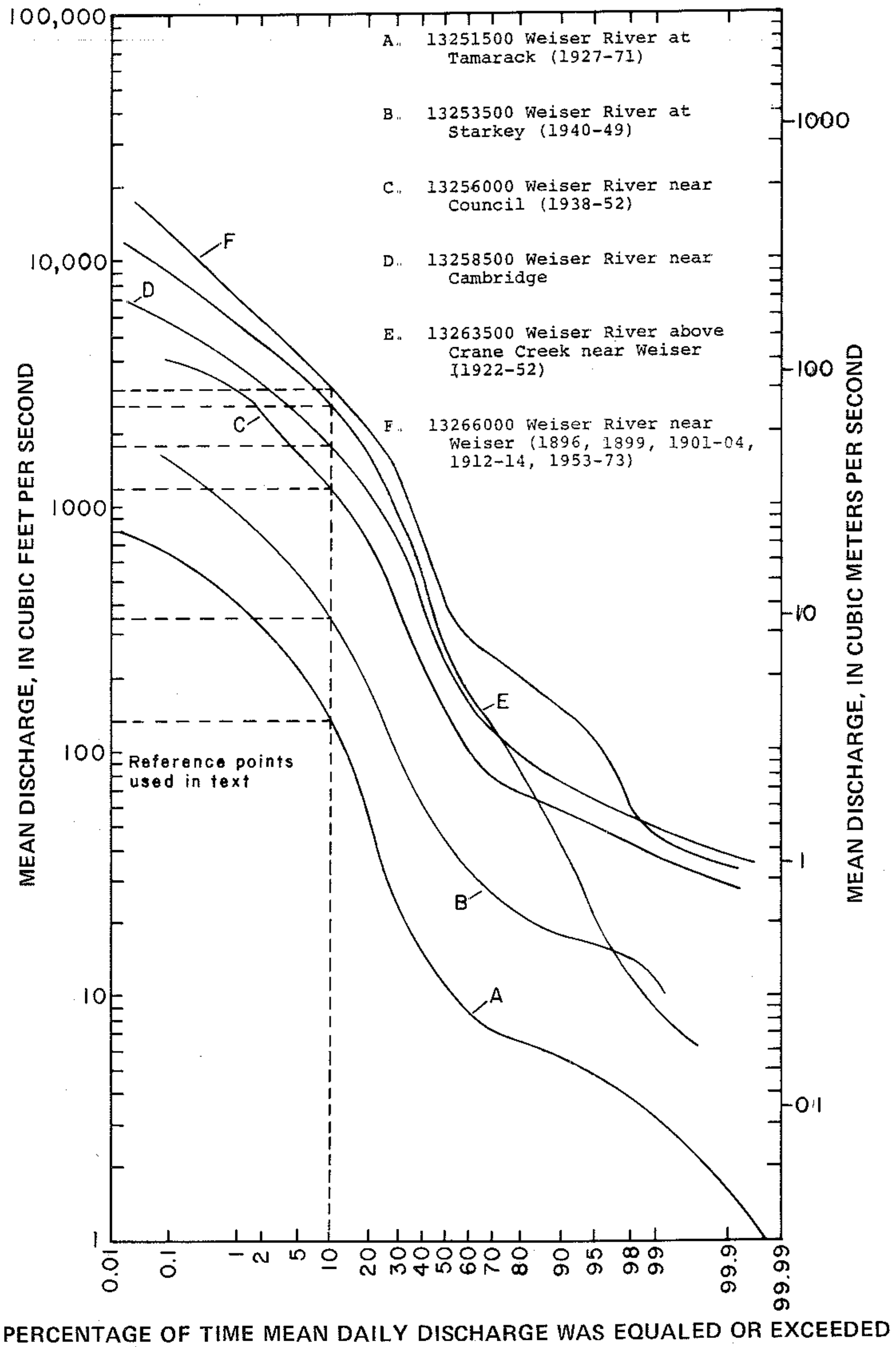


FIGURE 15. Flow-duration curves of daily flow for selected stations on the Weiser River.

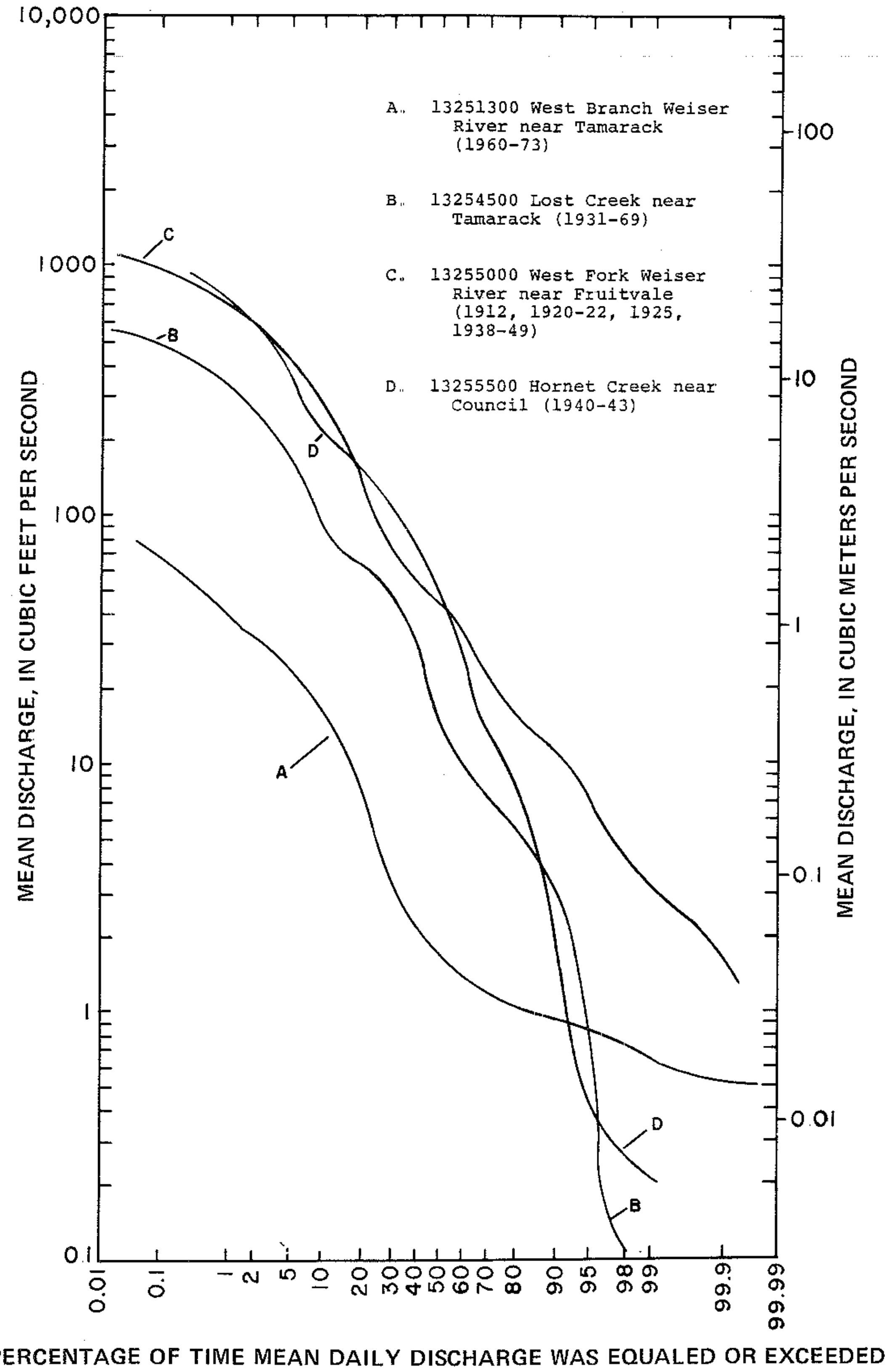


FIGURE 16. Flow-duration curves of daily flow for selected tributaries in the upper Weiser River basin.

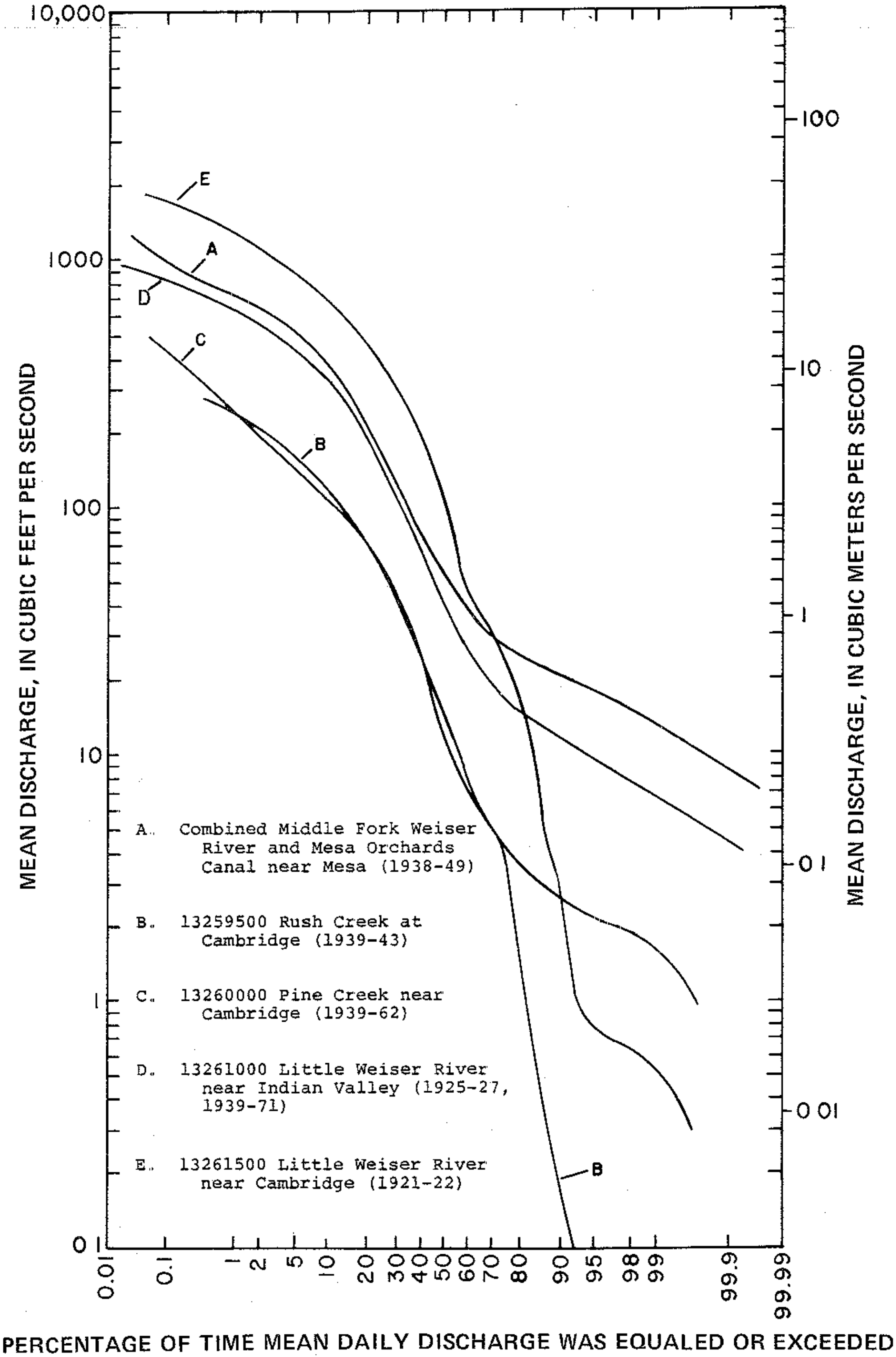


FIGURE 17. Flow-duration curves of daily flow for selected tributaries in the middle Weiser River basin.

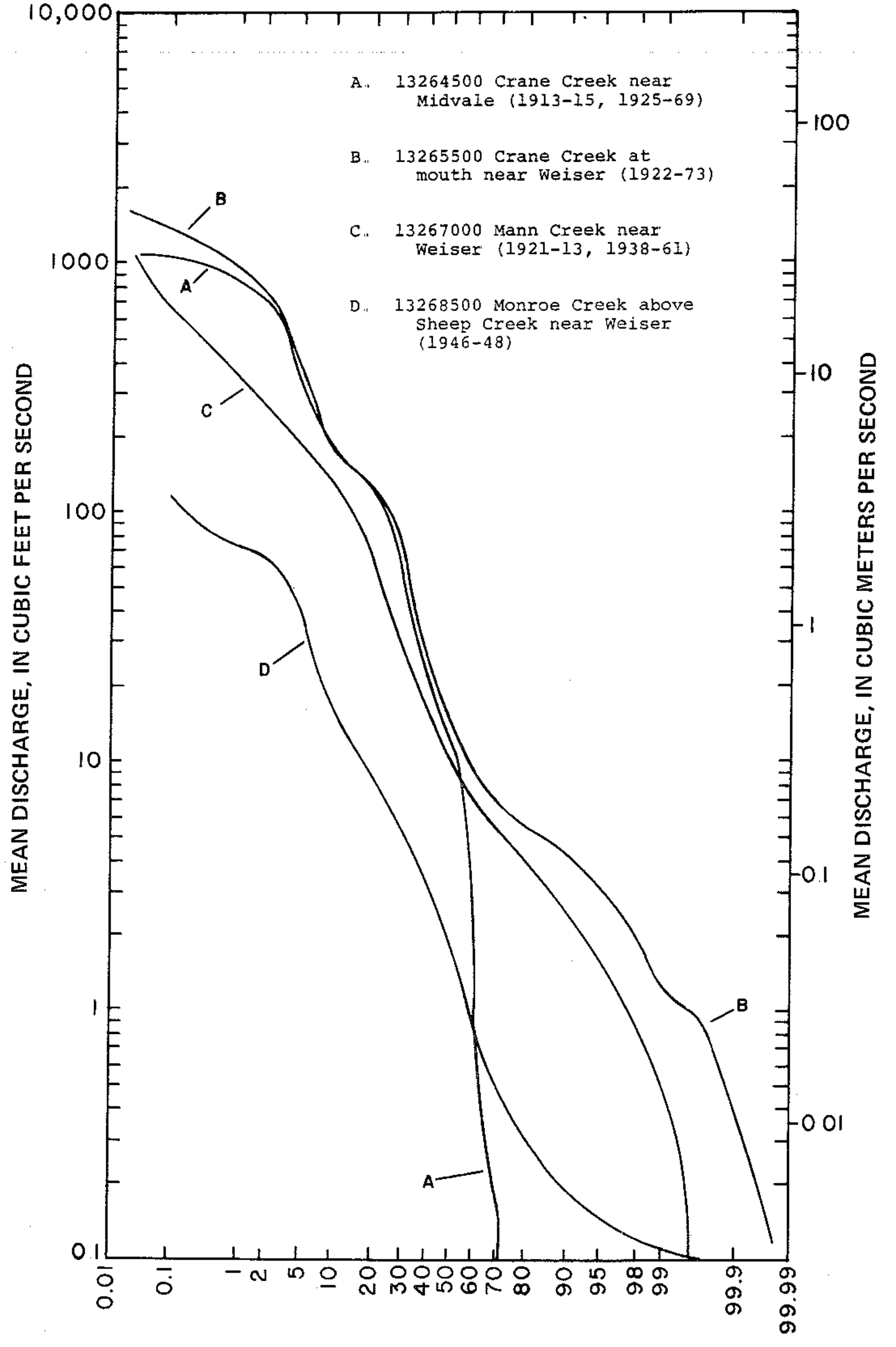


FIGURE 18. Flow-duration curves of daily flow for selected tributaries in the lower Weiser River basin.

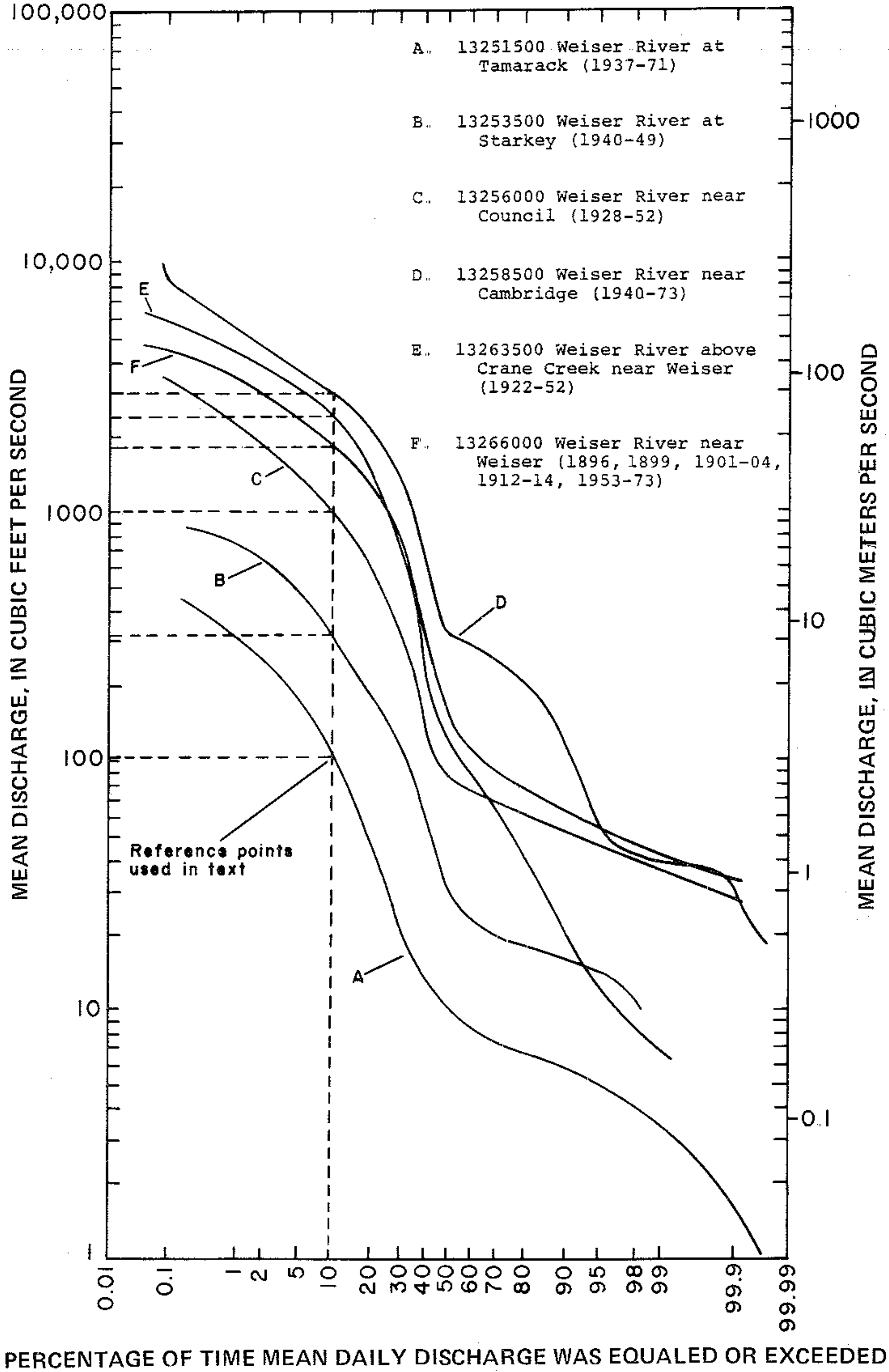


FIGURE 19. Flow-duration curves of daily flow May 1 to September 30, for selected stations on the Weiser River.

10-year low flow for the Weiser River at Tamarack is 3.1 ft^3/s (0.09 m^3/s). The 10-year period cited in the example is the recurrence interval, or the average time period between low flows lower than the specified magnitude. The recurrence interval of 10 years does not indicate that lower than specified flows will occur at 10-year intervals; it indicates only that the average interval between such occurrences is 10 years. Because probability is the reciprocal of the recurrence interval, the example can be restated to say that there is a 10 percent chance—or the probability is 0.10—that the 7-day low flow at the Weiser River at Tamarack will be lower than 3.1 ft^3/s (0.09 m^3/s) in any one year. Low-flow characteristics of the Weiser River and selected tributaries for 1-day, 3-day, 7-day, and 14-day periods and recurrence intervals of 2, 5, 10, and 20 years are given in basic-data table D.

High-Flow Discharge

High-flow characteristics of streams are important in the proper design of dams, levees, bridges, culverts, and other structures which are subject to damage from excessively high streamflows. They are presented as frequencies in a manner similar to that used for the low-flow characteristics.

High-flow frequencies are listed in basic-data table E for the Weiser River and selected tribuaries for the 1-day, 3-day, 7-day, 15-day, and 30-day high-flow periods for recurrence intervals of 2, 5, 10, and 25 years. For example, the 7-day high-flow discharge with a recurrence interval of 10 years for the Weiser River at Tamarack is 542 ft^3/s (15 m^3/s).

For most streams in the Weiser River basin, much of the total annual discharge of each stream occurs during a short high-flow discharge period. This is especially true of the low-altitude, low-precipitation streams of the southern part of the basin.

Floods

The largest floods in the Weiser River basin usually occur during the winter months and are generally caused by rapid snowmelt resulting from rain falling on the snowpack, unseasonably warm temperatures, or both. Winter floods of a more localized nature are usually the result of a sudden thaw which breaks up river ice. The river ice begins to flow and creates ice jams, causing the streams to overflow.

A parameter frequently used in describing floods is the annual peak discharge. The discharge referred to is the highest momentary flow experienced during a water year at a particular site. Most commonly, annual peak-discharge data are collected at gaging stations. However, such annual peak discharges can also be measured at other sites by indirect methods involving surveys of water profiles and stream cross sections and mathematical computation of flow through the surveyed reach. This has been done at discontinued gages and ungaged sites in the Weiser basin. For example, indirect measurements of the December 1955 flood were made at the discontinued gaging station Rush Creek at Cambridge and at the ungaged site South Fork Crane Creek near Crane, and have been reported by Decker and others (1970).

Analyses of annual peak-discharge data are used by hydrologists and engineers to estimate flood-hazard areas, determine optimum sizes for bridges and culverts, and to plan for other hydraulic structures. Such analyses involve determination of the frequency of occurrence of peaks. A procedure to be used by Federal agencies in the analysis of peak-discharge data has been proposed by the Water Resources Council (1967). The

BASIC-DATA TABLE D

LOW-FLOW CHARACTERISTICS OF SELECTED TRIBUTARIES AND WEISER RIVER STATIONS

(Flows in cubic feet per second)

Station number and name		1-Day low flow			
		2-year	5-year	10-year	20-year
13251300	West Branch Weiser River near Tamarack	.68	.52	.45	.40
13251500	Weiser River at Tamarack	3.7	2.2	1.5	1.1
13253500	Weiser River at Starkey	15	12	11	-
13253850	West Fork Weiser River near Tamarack	1.2	.65	.41	.27
13254500	Lost Creek near Tamarack	2.2	.66	.30	.15
13255050	West Fork Weiser River near Fruitvale	5.0	2.3	1.4	.86
13255200	Mill Creek near Council	4.0	2.9	2.3	1.9
13255280	North Hornet Creek near Council	.56	.32	.22	.15
13255750	Cottonwood Creek above diversions near Council	3.9	2.4	1.8	1.3
13256000	Weiser River near Council	39	32	28	26
	Combined Middle Fork Weiser River near Mesa and Orchards Canal	13	8.9	7.3	6.2
13256800	Middle Fork Weiser River above Fall Creek near Mesa	17	11	8.6	6.6
13257600	Johnson Creek near Goodrich	3.7	2.3	1.6	1.2
13257700	Dry Creek at Goodrich	0	0	0	0
13257800	Goodrich Creek near Goodrich	2.8	1.8	1.3	.97
13258500	Weiser River near Cambridge	53	42	38	34
13259500	Rush Creek at Cambridge	0	0	0	0
13260000	Pine Creek near Cambridge	2.1	1.3	.99	.80
13260090	West Pine Creek near Cambridge	3.3	2.2	1.6	1.3
13260300	Pine Creek at mouth at Cambridge	5.5	4.4	4.0	3.7
13260500	Little Weiser River at Ruby Ranch near Indian Valley	9.9	8.1	7.3	6.7
13261000	Little Weiser River near Indian Valley	7.6	5.8	4.9	4.3
13261600	Little Weiser River near mouth near Cambridge	14	11	10	9.2
13261670	Dixie Creek near Cambridge	0	0	0	0
13261880	Keithly Creek above diversions near Midvale	3.4	2.4	1.8	1.4
13263150	Banner Creek near Midvale	0	0	0	0
13263500	Weiser River above Crane Creek near Weiser	28	14	9.5	6.8
13263800	Mill Creek near Crane	0	0	0	0
13263930	Tennison Creek near South Crane School	0	0	0	0
13263950	South Fork Crane Creek near Crane	0	0	0	0
13264500	Crane Creek near Midvale	0	0	0	0
13265500	Crane Creek at mouth near Weiser	1.6	.75	.46	.30
13266000	Weiser River near Weiser	89	49	33	23
13266850	Mann Creek above reservoir near Weiser	1.0	.49	.33	.23
13268500	Monroe Creek above Sheep Creek near Weiser	0	0	0	0
13269210	Scott Creek above diversions near Weiser	0	0	0	0
13269228	Hog Creek near Weiser	0	0	0	0

To convert cubic feet per second to cubic meters per second multiply by 0.02832.

(continued)

3-Day low flow				7-Day low flow				14-Day low flow			
2-year	5-year	10-year	20-year	2-year	5-year	10-year	20-year	2-year	5-year	10-year	20-year
.71	.57	.52	.48	.76	.61	.55	.51	.81	.67	.61	.57
4.5	3.0	2.3	1.7	4.7	3.6	3.1	2.7	5.0	4.1	3.6	3.2
15	13	11	-	15	13	11	-	16	13	11	-
1.6	.98	.69	.49	1.7	1.2	1.0	.84	1.8	1.4	1.2	1.1
2.5	.76	.35	.17	2.7	88	.42	.21	3.5	1.2	54	.26
6.0	2.8	1.6	.94	7.6	3.6	2.1	1.2	8.3	4.6	3.0	2.0
4.4	3.5	3.0	2.6	4.6	3.9	3.6	3.3	4.7	4.2	3.9	3.7
.69	.46	.34	.25	.73	.56	.47	.40	.78	.63	.55	.49
4.7	3.3	2.6	2.0	4.9	3.9	3.4	3.0	5.2	4.3	3.9	3.5
41	34	30	27	45	37	33	30	48	42	40	37
14	10	8.8	7.5	16	12	10	9.0	17	14	12	11
18	14	11	8.5	19	16	15	14	20	17	16	15
4.4	3.1	2.4	1.9	4.6	3.7	3.2	2.8	4.9	4.1	3.6	3.3
0	0	0	0	0	0	0	0	0	0	0	0
3.2	2.2	1.7	1.3	3.3	2.7	2.4	2.2	3.5	2.9	2.7	2.5
56	44	39	35	60	48	42	38	63	51	46	42
0	0	0	0	0	0	0	0	0	0	0	0
2.2	1.4	1.1	.89	2.4	1.6	1.3	1.1	2.7	1.8	1.5	1.3
3.8	2.8	2.3	1.8	3.9	3.2	2.9	2.6	4.1	3.6	3.2	3.0
5.8	4.6	4.1	3.7	6.1	5.0	4.4	4.1	6.4	5.3	4.8	4.4
10	8.4	7.5	6.8	11	9.0	8.1	7.4	12	9.5	8.6	8.0
8.1	6.2	5.3	4.6	8.5	6.6	5.6	4.9	9.0	6.9	5.9	5.1
14	12	10	9.3	15	12	11	10	16	13	12	11
0	0	0	0	0	0	0	0	0	0	0	0
3.9	3.0	2.4	2.0	4.0	3.4	3.0	2.7	4.2	3.6	3.4	3.1
0	0	0	0	0	0	0	0	0	0	0	0
29	14	9.6	6.8	30	15	9.9	6.9	33	16	10	7.0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
2.0	.92	.57	.37	2.5	1.3	.90	.64	3.2	1.8	1.3	.92
94	53	36	26	102	56	38	27	108	59	40	28
1.1	.54	.36	25	1.3	.72	.52	.39	1.5	.86	.63	.48
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

BASIC-DATA TABLE E

HIGH-FLOW CHARACTERISTICS OF SELECTED TRIBUTARIES AND WEISER RIVER STATIONS

(Flows in cubic feet per second)

Station number and name		1-Day high flow 2-year	5-year	10-year	25-year	3-Day high flow 2-year	5-year
13251300	West Branch Weiser River near Tamarack	34	51	64	83	32	48
13251500	Weiser River at Tamarack	428	598	705	834	395	536
13253000	East Fork Weiser River near Starkey	312	404	459	522	293	371
13253500	Weiser River at Starkey	917	1.440	1,760	2,140	910	1 300
13253850	West Fork Weiser River near Tamarack	450	680	834	1 030	407	594
13254500	Lost Creek near Tamarack	266	399	475	558	259	386
13255050	West Fork Weiser River near Fruitvale	629	759	832	914	601	714
13255200	Mill Creek near Council	63	76	84	93	60	72
13255280	North Hornet Creek near Council	87	124	148	176	80	110
13255500	Hornet Creek near Council	482	541	572	606	469	521
13255750	Cottonwood Creek above diversions near Council	277	374	433	503	258	339
13255800	Cottonwood Creek near Council	155	186	204	224	148	176
13256000	Weiser River near Council	2,520	3,580	4,300	5 230	2,370	3.360
	Combined Middle Fork Weiser River near Mesa and Mesa Orchards Canal	806	1,030	1,140	1.240	754	913
13256800	Middle Fork Weiser River above Fall Creek near Mesa	542	631	682	740	516	592
13257600	Johnson Creek near Goodrich	277	375	435	507	257	340
13257700	Dry Creek at Goodrich	121	192	243	311	88	138
13257800	Goodrich Creek near Goodrich	145	172	188	207	137	160
13258500	Weiser River near Cambridge	4.070	5.530	6,430	7,490	3,440	4,590
13259500	Rush Creek at Cambridge	309	360	375	382	275	317
13260000	Pine Creek near Cambridge	228	329	401	496	202	290
13260090	West Pine Creek near Cambridge	121	156	177	201	114	144
13260300	Pine Creek at mouth at Cambridge	311	414	476	548	266	348
13260500	Little Weiser River at Ruby Ranch near Indian Valley	499	658	754	865	428	556
13261000	Little Weiser River near Indian Valley	617	810	924	1 060	563	735
13261600	Little Weiser River near mouth near Cambridge	699	923	1,060	1.220	600	780
13261670	Dixie Creek near Cambridge	114	262	398	618	65	145
13261880	Keithly Creek above diversions near Midvale	86	109	121	136	82	101
13261962	Kiethly Creek at mouth near Midvale	256	298	322	349	230	267
13263150	Banner Creek near Midvale	61	102	133	174	43	71
13263500	Weiser River above Crane Creek near Weiser	5,760	8,280	9.990	12,200	4,960	6,900
13263750	Hog Creek near Crane	132	146	153	161	123	136
13263800	Mill Creek near Crane	78	146	201	279	51	94
13263930	Tennison Creek near South Crane School	119	231	323	460	76	144
13263950	South Fork Crane Creek near Crane	402	739	1,010	1.390	265	479
13264500	Crane Creek near Midvale	547	877	1,090	1,340	534	865
13265500	Crane Creek at mouth near Weiser	734	1,210	1,530	1 930	630	1,100
13266000	Weiser River near Weiser	9,100	12,900	15.400	18,500	7.550	10,600
13266450	Cove Creek near Weiser	41	52	58	66	35	44
13266850	Mann Creek above reservoir near Weiser	355	550	694	895	297	456
13268500	Monroe Creek above Sheep Creek near Weiser	278	441	558	713	201	317
13269210	Scott Creek above diversions near Weiser	79	132	171	225	56	92
13269228	Hog Creek near Weiser	74	131	176	238	50	87

To convert cubic feet per second to cubic meters per second multiply by 0.02832.

(continued)

3-Day high flow		7-Day high flow				15-Day high flow				30-Day high flow			
10-year	25-year	2-year	5-year	10-year	25-year	2-year	5-year	10-year	25-year	2-year	5-year	10-year	25-year
60	77	31	45	55	69	27	40	48	60	23	33	39	47
617	709	347	470	542	621	298	402	462	531	247	323	368	418
414	461	265	335	374	416	236	297	331	368	204	251	277	306
1,520	1,750	831	1,210	1,450	1,720	702	992	1,160	1,350	603	811	922	1,040
707	840	347	505	602	713	287	416	494	587	228	317	373	437
459	538	239	355	423	499	212	320	384	456	174	262	315	378
772	835	560	663	718	775	514	607	657	710	462	537	578	631
78	84	56	66	72	78	51	61	66	71	46	53	58	62
128	149	70	96	112	129	59	81	94	109	49	65	74	85
547	573	449	498	523	548	426	472	495	519	400	438	458	478
384	435	230	301	342	386	200	262	297	336	169	215	242	271
190	205	138	163	177	190	127	150	162	175	115	133	143	153
4,010	4,830	2,160	3,000	3,520	4,120	1,920	2,670	3,140	3,690	1,610	2,250	2,670	3,210
972	1,020	681	807	851	881	600	720	766	802	524	633	676	709
633	678	485	556	595	637	444	508	542	576	398	452	481	512
386	438	229	301	343	388	199	262	297	337	168	215	241	271
174	223	61	94	116	144	38	62	79	102	24	48	67	73
173	187	128	149	161	174	116	135	145	156	102	118	127	136
5,280	6,100	2,970	3,980	4,600	5,320	2,590	3,450	3,960	4,570	2,200	2,920	3,380	3,950
330	337	238	272	282	289	206	234	242	247	184	206	212	215
355	445	174	250	308	393	151	217	268	342	125	176	217	276
160	178	103	130	145	161	92	115	128	143	80	98	108	119
396	452	232	305	348	399	204	267	303	346	175	228	262	302
631	719	375	489	557	635	331	429	486	554	286	369	421	485
835	948	518	663	743	829	458	592	669	754	405	523	591	667
885	1,010	525	685	781	891	464	602	682	776	400	517	590	680
220	341	33	72	105	156	15	34	53	84	6.3	14	22	35
111	122	75	92	102	111	68	83	91	100	59	71	78	85
288	313	204	235	252	271	175	205	222	241	150	174	189	205
92	120	28	46	58	74	17	29	38	50	10	17	22	29
8,210	9,780	4,180	5,780	6,740	7,850	3,550	4,960	5,800	6,750	3,000	4,220	4,980	5,870
143	150	114	125	131	137	103	114	120	127	93	103	108	114
128	178	31	55	74	99	17	32	44	62	8.8	17	23	32
201	285	45	83	112	153	23	46	65	93	12	23	32	46
650	897	163	287	379	504	89	167	230	320	48	88	121	168
1,080	1,330	500	824	1,040	1,310	415	695	897	1,170	301	489	635	845
1,420	1,850	553	984	1,290	1,690	464	831	1,100	1,440	338	586	772	1,020
12,500	14,900	5,890	8,220	9,670	11,400	4,620	6,440	7,540	8,220	3,780	5,100	5,880	6,780
49	56	29	36	40	45	23	29	33	37	18	23	26	29
576	742	245	377	475	612	218	325	404	513	184	262	317	390
400	511	139	214	265	330	88	142	181	233	55	87	111	142
119	156	37	60	75	96	22	38	49	65	13	22	29	38
116	158	32	54	70	92	18	32	44	60	10	18	24	33

log-Pearson Type III frequency analysis procedure has been followed in this report, and the frequency curves shown in figures 20, 21, 22, and 23 have been derived using the proposed procedure.

The magnitude and frequency of annual peaks on the Weiser River for the six gaged sites are shown in figure 20. The series of dashed lines show that the peak discharges expected to be equaled or exceeded on the average of once in 10 years are 800 ft^3/s (23 m^3/s) for the Weiser River at Tamarack; 2,280 ft^3/s (65 m^3/s) for the Weiser River at Starkey; 5,170 ft^3/s (146 m^3/s) for the Weiser River near Council; 8,160 ft^3/s (231 m^3/s) for the Weiser River near Cambridge; 12,600 ft^3/s (357 m^3/s) for the Weiser River above Crane Creek near Weiser; and 17,100 ft^3/s (484 m^3/s) for the Weiser River near Weiser. Magnitudes and frequencies of peak discharges for tributary basins are presented in figures 21, 22, and 23. These figures can be used in the same manner as figure 20.

The highest flood of record (38 years) on the Weiser River near Weiser is 19,900 ft^3/s (564 m^3/s), which was recorded during December 1955. The same flood was also the highest of record (36 years) at the station Weiser River near Cambridge with 10,100 ft^3/s (286 m^3/s). The recurrence intervals for the December 1955 flood at these stations, based on the frequency curves, are 23 years for Weiser River near Weiser, 40 years for Weiser River near Cambridge, 30 years for Weiser River near Council, and in excess of 100 years for Weiser River at Tamarack. In contrast, the peak discharge for the 1975 water year of the Weiser River near Weiser was 6,700 ft^3/s (190 m^3/s), with a recurrence interval of 1.2 years; Weiser River near Cambridge, 5,060 ft^3/s (143 m^3/s), 2 years; and Weiser River at Tamarack, 707 ft^3/s (20 m^3/s), 6.2 years.

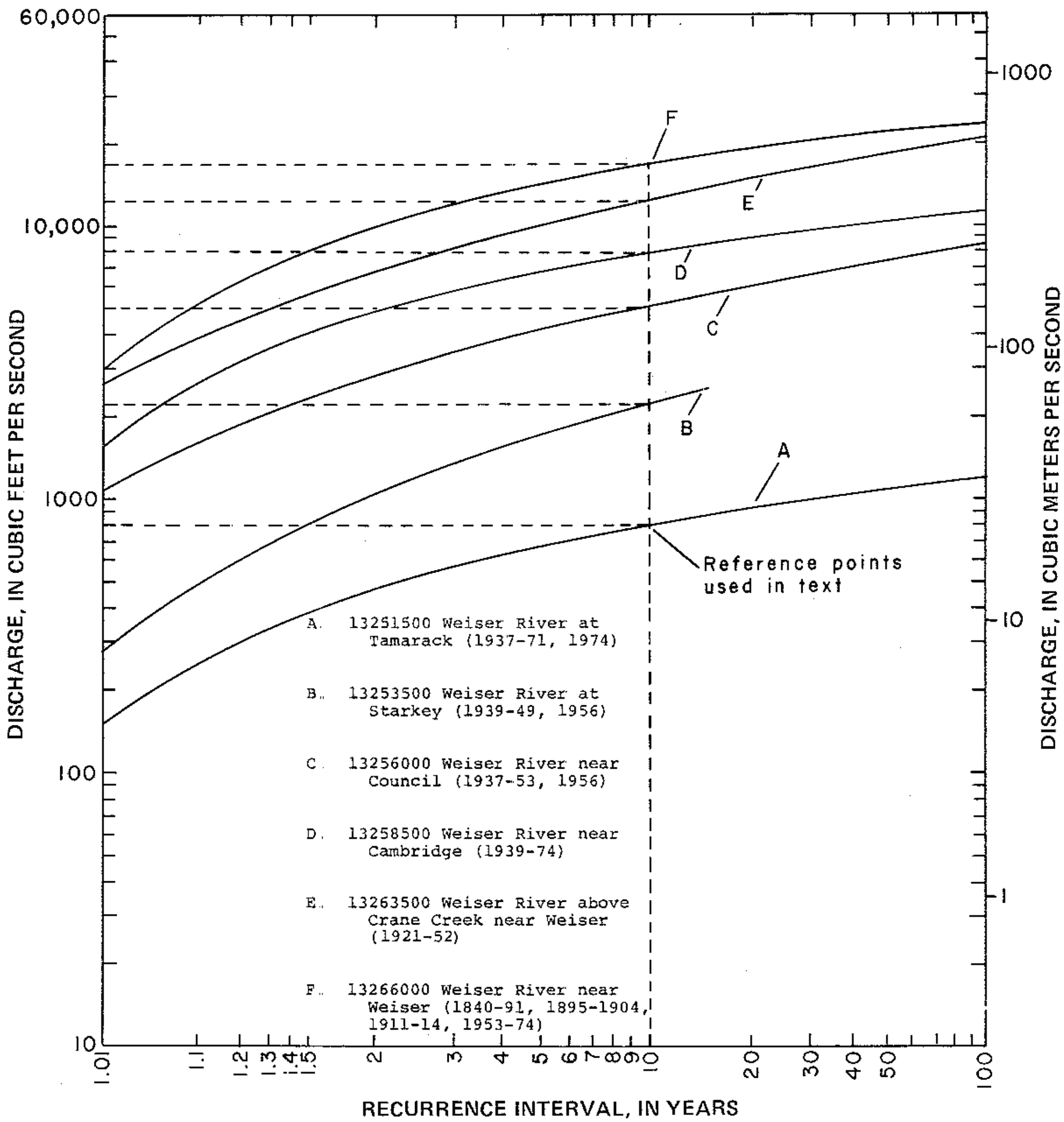


FIGURE 20. Magnitude and frequency of floods at selected sites on the Weiser River.

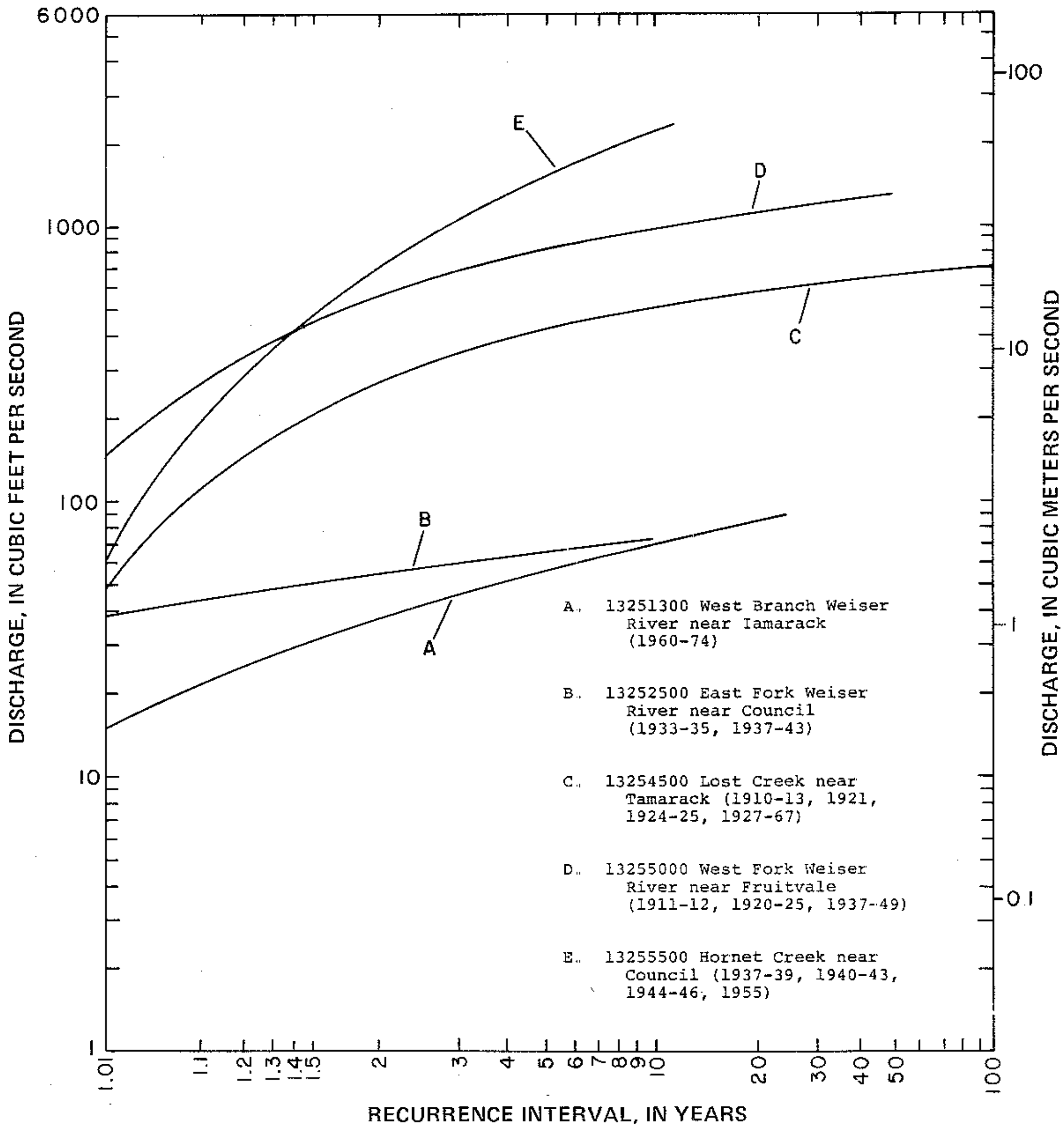


FIGURE 21. Magnitude and frequency of floods on selected tributaries in the upper Weiser River basin.

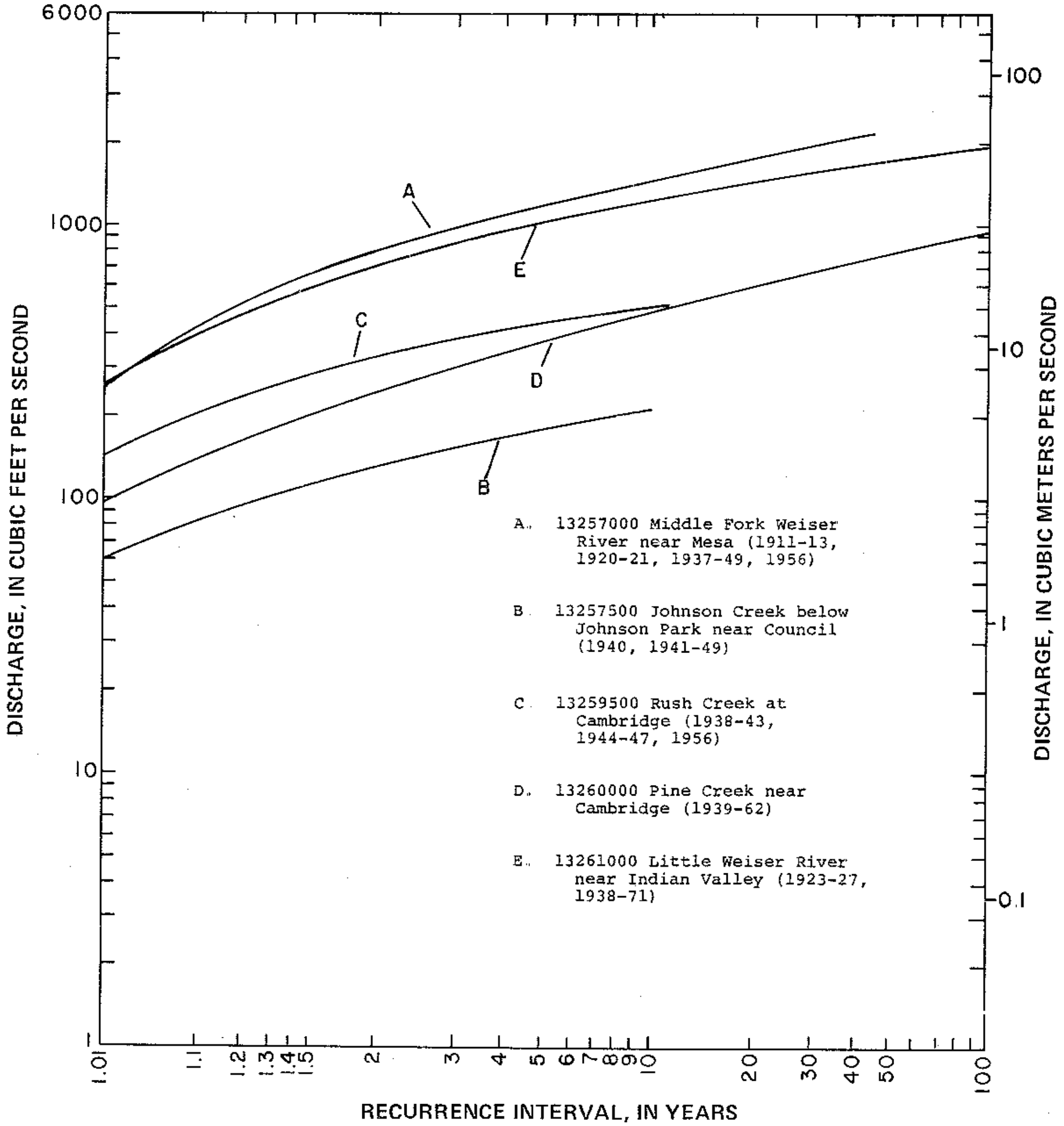


FIGURE 22. Magnitude and frequency of floods on selected tributaries in the middle Weiser River basin.

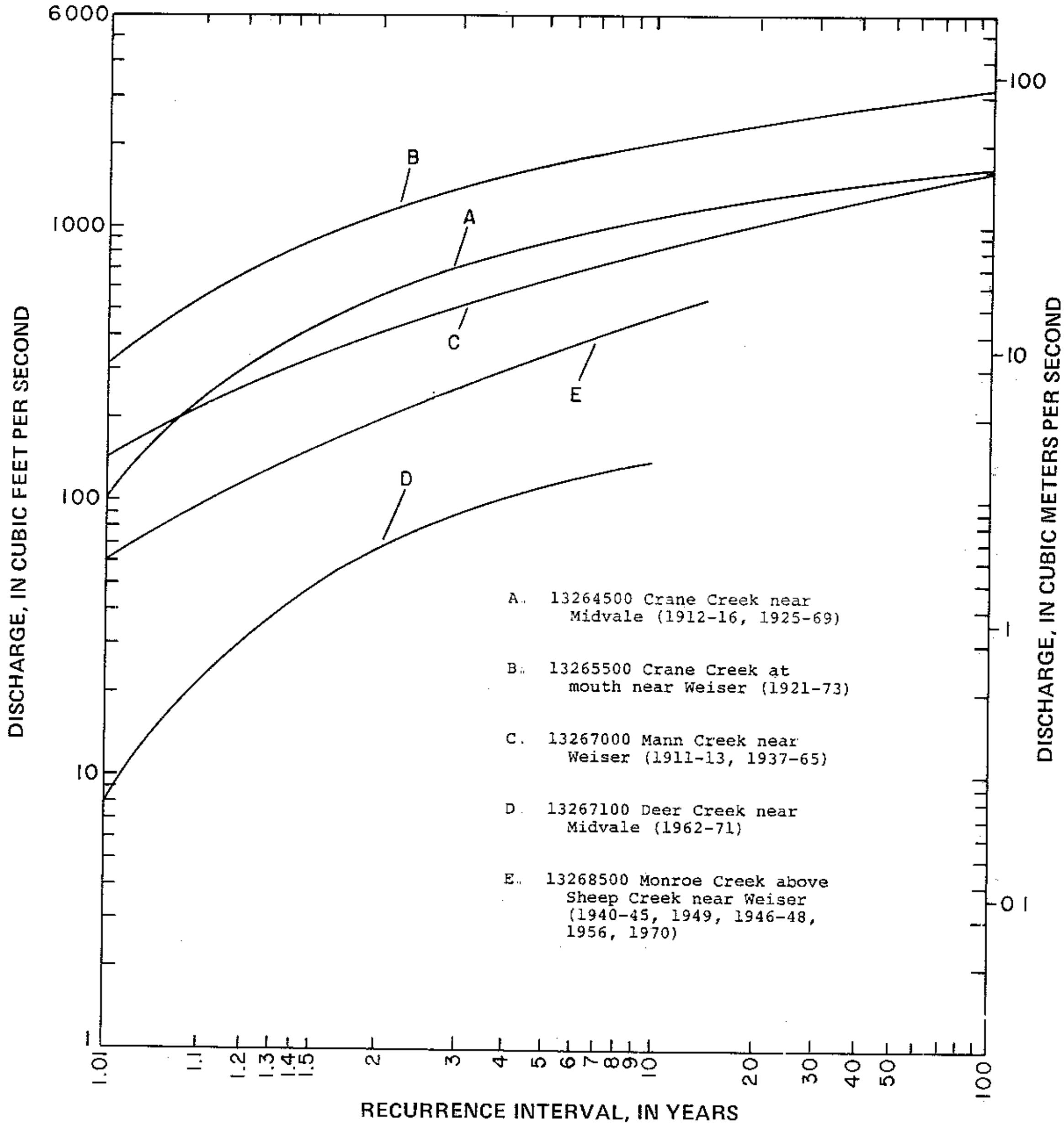


FIGURE 23. Magnitude and frequency of floods on selected tributaries in the lower Weiser River basin.

WATER QUALITY

Three water-quality stations were established on the Weiser River. These stations were sampled monthly from April 1974 through December 1975 for chemical constituents and during periods of high flows for suspended-sediment concentrations. Nineteen water-quality stations were established on tributary streams and were sampled for chemical constituents during periods of low flows and for suspended-sediment concentrations during periods of high flows. An additional 13 stations, along with several other miscellaneous sites, were sampled for suspended-sediment concentrations during periods of high flows.

From August 20 to August 28, 1974, a survey of streamflow losses and gains was made along the Weiser River from river mi 94.8 (km 153) above the mill pond at Tamarack to mi 0.0 (km 0.0) at the mouth in Weiser. During the same period, the river was sampled at 32 sites for nutrients, dissolved oxygen, dissolved solids, pH, and temperature. In addition, sampling was done at selected sites for coliform bacteria concentrations and pesticide levels.

To determine the chemical character of the ground water within the basin, municipal wells in the communities of Weiser, Midvale, Cambridge, and Council were sampled during August 1974. In August 1975, 27 stock, irrigation, and domestic wells were sampled throughout the Weiser River basin.

The chemical and biological characteristics of water determine its suitability for domestic, agricultural, and industrial use.

The physical factors of the stream, such as flow velocity, volume of water, bottom contours, rate of water exchange, depth, light penetration, and temperature, play vital roles in the chemical reactions and the nature of biological activities.

The natural aquatic environment includes diverse species of plants and animals that vary in their chemical and physical needs. Natural and manmade sources introduce a variety of organic and inorganic materials into the aquatic environment. Within the aquatic environment, these materials are transported, converted, respired, incorporated, excreted, and deposited.

Many of man's various physical activities that maximize the use of water often adversely affect its quality. Alteration of streambeds by channelizing, filling, diking, removing sand and gravel, and impounding may have adverse effects on water quality. In addition, activities on the watershed—clearing, logging, grazing, and leveling—can affect the quality of water entering streams.

Table 3 relates chemical and biological characteristics of significance, concentration of normal occurrence, limits of beneficial use, adverse effects, and concentrations observed in the Weiser River basin during the study.

Ground-Water Quality

Ground-water samples were collected from 35 wells throughout the area to define current water-quality conditions.

Chemical analyses of water from municipal, domestic, irrigation, and stock wells in the Weiser River basin are given in basic-data table F.

Differences and similarities among selected waters can be illustrated graphically. A distinctive pattern system was suggested by Stiff (1951). His method uses three parallel horizontal axes extending on each side of a vertical zero axis. Concentrations of three cations can be plotted, one on each axis to the left of zero; likewise, three anion concentrations may be plotted, one on each axis to the right of zero. The concentrations are expressed in milliequivalents per liter. The resulting points are connected to give an irregular polygonal pattern (fig. 24). The shape of the resulting polygon is a distinctive identifier of water characteristics. The overall width of the polygon suggests the dissolved-solids concentration of the water. The numerical value of specific conductance above the diagram is a further indicator of the dissolved-solids concentration. The patterns in the upper part of the basin show the ground water to be calcium bicarbonate type with low concentrations of dissolved solids in both the basalt and sedimentary-rock aquifers. In the southern parts of the basin, the ground water increases in dissolved-solids concentration but is still generally a calcium bicarbonate type. An exception to this occurs in the vicinity of Cambridge and Midvale, where the water is predominantly a sodium bicarbonate type.

Municipal wells in Council, Cambridge, and Midvale are producing water of "good" quality that is chemically suited for use as drinking water. However, water from municipal well 14N-3W-DDC2 at Cambridge contains concentrations of iron high enough to cause possible staining problems on plumbing fixtures. The municipal wells at Council, Cambridge, and Midvale all withdraw water from the deeper basalt aquifer. Wells 14N-3W-3DDC1 at Cambridge and 13N-3W-8CCC1 at Midvale discharge warm water at 26° and 28.5°C, respectively; this is not unusual because the Weiser River basin has known geothermal systems (Young and Mitchell, 1973). Municipal wells 11N-5W-29BAC1, 11N-5W-29BCD1, and 11N-5W-29BDB1 at Weiser withdraw water from the sedimentary rocks and produce harder water, with dissolved-solids concentrations of 393, 490, and 514 mg/L, respectively. The municipal wells in Council, Cambridge, Midvale, and Weiser were all sampled for bacteria concentrations. At the time of sampling, no bacteria were found in the waters.

Water from wells 14N-1W-10DBA1 and 14N-1W-27ABA1, in Indian Valley, has high concentrations of iron, 2.8 and 1.2 mg/L, respectively. Water from wells in the vicinity of Weiser has fairly high concentrations of dissolved solids. Water from well 10N-5W-17ACC1, south of Weiser on the Snake River flood plain, has the highest concentration of dissolved solids of all wells sampled in the basin (1,150 mg/L). Water from wells 13N-3W-5BCB1, north of Midvale, and 13N-2W-21DCD2, east of Midvale, has high concentrations of sulfate, chloride, and nitrate, indicating possible contamination. Both wells are downgradient from stock corrals.

TABLE 3

SIGNIFICANCE OF SELECTED CHEMICAL AND BIOLOGICAL CHARACTERISTICS

Constituent	Significance	Concentration of normal occurrence	Limits for domestic use	Adverse effects	Unusual concentration may indicate	Concentrations observed in sampled Weiser River basin water	Remarks
Silica (SiO_2)	Present in most waters in varying concentrations.	10 to 60 mg/L.	None.	Forms scales in steam boilers.	Association with thermal water.	2-84 mg/L.	
Iron (Fe)	Objectionable for most domestic and industrial uses.	0.01 to 10 mg/L.	0.3 mg/L[1/, 2/]	Objectionable taste, staining.	Iron-bearing mineral.	0 to 2.8 mg/L.	
Calcium (Ca)	Present in most waters in varying concentrations, adds to hardness.	10 to several hundred mg/L.	75 mg/L[1/]	Buildup of scales within plumbing.	Association with sedimentary-rock aquifers.	5.5 to 110 mg/L.	Contributes to the hardness of water.
Magnesium (Mg)	Present in most waters in varying concentrations, adds to hardness.	10 to several hundred mg/L.	125 mg/L.	Buildup of scales within plumbing.		1.8 to 34 mg/L.	Contributes to the hardness of water.
Hardness as calcium carbonate ($CaCO_3$)	Hard water.	50 to 500 mg/L.	0 to 75 mg/L soft water, 75 to 150 mg/L moderately hard water, 150 to 300 mg/L hard water, greater than 300 mg/L very hard water.	Soap will not produce lather, forms scales when heated.		21 to 410 mg/L.	
Sodium (Na)	Present in most waters in varying concentrations, detrimental to agriculture if present in excess.	1 to 200 mg/L.	250 mg/L.	Loss of soil permeability.	Highway deicing, association with igneous-rock aquifers.	2.5 to 250 mg/L.	
Potassium (K)	Present in most waters, usually in concentrations less than sodium, essential plant nutrient.	.01 to 10 mg/L.	20 mg/L.			0.9 to 23 mg/L.	
pH	Expresses the acidity or basicity of a solution.	5 to 9 pH units.	4.5 to 10.0 pH units.	Water corrosive if too high or too low.	pH values near 9 units or higher indicate algal growths, pH values below 4 units indicate acid mineral wastes.	6.3 to 9.8 pH units.	0 pH units 14 Acid Alkaline
Alkalinity as calcium	Measure of water's capacity to neutralize acids.	50 to 400 mg/L.		Objectionable taste.		25 to 146 mg/L.	
Sulfate (SO_4)	Present in most waters. Detrimental for most uses if present in excess.	1 to 100 mg/L.	250 mg/L[1/]	Possible cathartic effect on humans.	Association with sedimentary-rock aquifers.	0.6 to 230 mg/L.	Concentrations in excess of 250 mg/L will form scales when heated.
Chloride (Cl)	Present in most waters in varying concentrations.	1.0 to 100 mg/L.	250 mg/L[1/]	Objectionable taste.	Organic wastes, highway deicing.	0 to 45 mg/L.	Chloride is not removed by soils; good indicator of possible pollution.
Fluoride (F)	Concentrations of small magnitude have beneficial effect on structure and resistance to decay of teeth.	0.01 to 10 mg/L.	1.0 mg/L[1/]	Dental fluorosis.	Association with thermal water.	0 to 1.0 mg/L.	
Nitrite plus nitrate as nitrogen (NO_2 + NO_3 as N)	Plant nutrient.	0.10 to 10 mg/L.	10 mg/L[1/]	Infants may develop temporary blood disorders. Excessive algae growths.	Organic wastes or excessive fertilization.	0 to 9.0 mg/L.	Excessive concentrations may indicate possible organic pollution.
Total phosphorus as phosphate (P)	Plant nutrient.		1 mg/L.	Excessive algae growths.	Organic pollution.	0.01 to .99 mg/L.	
Dissolved solids	Measure of mineralization of water.	50 to 1,000 mg/L.	500 mg/L[1/]	Cathartic effect on humans.	Excess salinity.	50 to 1,150 mg/L.	
Percent sodium	Percent sodium among the total cations in milliequivalents per liter.		60 percent.	Loss of permeability.		15 to 25 percent.	
SAR (sodium-adsorption ratio)	Prediction of cation exchange of water and soil ions.					0.2 to .5.	
Specific conductance	Estimate of dissolved solids.	50 to 1,000 µmhos/cm.	700 µmhos/cm.			50 to 1,810 µmhos/cm.	Easily measured.
Temperature (°C)	Higher ground-water temperatures indicate deeper water circulation or thermal activity.			Surface water—higher temperatures and less dissolved oxygen.	Thermal pollution, association with thermal water.	0° to 28.5° C.	
Dissolved oxygen (DO)	In surface water, required to sustain aquatic life.			Loss of aquatic growth and reproduction.	Low concentrations in surface water may indicate pollution.	6.4 to 13 mg/L.	
Indicator bacteria (fecal coliforms)					Fecal pollution.	0 to 940 col. per 100 ml.	

1/ Limits for Drinking Water, U.S. Public Health Service, 1962.

2/ Water Use Criteria, 1972; The Environmental Proection Agency GPA-R3-73-033, March 1973, 594 p.

BASIC-DATA TABLE F

CHEMICAL ANALYSES OF WATER FROM SELECTED WELLS AND SPRINGS IN THE WEISER RIVER BASIN

(Chemical constituents in milligrams per liter except where noted)

Water Level: R – reported.

Principal Aquifer: QTs – Quaternary and Tertiary sedimentary deposits.
Tcr – Basalts of the Columbia River Basalt Group.

Use of Water: I – irrigation; P – public supply; S – stock; U – unused.

Well Number	Reported depth of well (feet below mean sea level)	Water level (feet below land surface)	Principal aquifer	Use of water	Date of sample	Discharge (gal/min)	Dissolved silica (SiO_2)	Dissolved iron (Fe) (µg/l)	Dissolved manganese (Mn) (µg/l)	Dissolved calcium (Ca)	Dissolved magnesium (Mg)	Dissolved sodium (Na)	Dissolved potassium (K)	Bicarbonate (HCO_3)	Carbonate (CO_3)	Alkalinity as $CaCO_3$	Dissolved sulfate (SO_4)	Dissolved chloride (Cl)	Dissolved fluoride (F)	Dissolved nitrite plus nitrate (N)	Total phosphorus (P)	Dissolved solids sum of constituents	Hardness (Ca, Mg)	Noncarbonate hardness	Percent sodium	Sodium adsorption ratio	Specific conductance (µmhos)	pH	Temperature (°C)	Dissolved arsenic (As) (µg/l)	Dissolved boron (B) (µg/l)
17N-02W-23CAA1	142	67.05	Tcr	I	08-12-75	48	52	10		12	6.3	8.3	3.3	102	0	84	3.2	0.6	0.1	0.11	0.03	136	56	0	23	0.5	152	7.6	12.5		
17N-01W-02DDA1	76	36.05	Tcr	H	08-11-75	12	50	0		14	6.7	5.6	3.5	112	0	94	1.1	.6	.1	.35	.04	138	63	0	15	.3	149		13.0		
15AAC1	131		Tcr	H	08-11-75	3.2	47	10		14	4.2	5.7	1.6	83	0	68	.6	1.0	.1	2.9	.03	128	52	0	19	.3	145	7.3	16.0		
16N-01W-02CBB1	102	26.67	QTs	H	08-11-75	8	48	20		25	8.9	9.7	1.1	156	0	128	6.8	2.4	.2	.86	.08	183	99	0	17	.4	240	6.9	13.5		
10CDC1	95	20.98	Tcr	H	08-12-75	13	46	40		23	13	11	3.8	168	0	138	13	2.8	.1	.05	.08	196	110	0	17	.5	264	6.8	13.5		
14ABB1	730		Tcr	P	08-07-74	351	54	0	0	13	6.0	6.4	2.6	88		72	2.1	.8	.1	0	.10	128	57	0	19	.4	136	7.8	15.5	1	10
15AAC1	407		Tcr	P	08-07-74	302	62	0	0	15	5.6	17	5.5	95		78	15	3.9	.2	.12	.09	172	61	0	35	1.0	198	8.0	17.0	2	70
22BAA1	390	164	Tcr	I	08-12-74	80	60	0		11	4.5	16	5.1	100	0	82	13	3.8	.2	.29	.06	164	46	0	40	1.0	187	7.4	15.0		
15N-03W-31DAC1	110	15.12	Tcr	H	08-13-75	9.6	48	30		29	10	11	5.2	183	0	150	3.6	.7	.3	.85	.05	202	110	0	17	.5	179	7.5	13.0		
15N-02W-15DDB1	75	22.99	Tcr	H	08-12-75	10	49	0		16	4.3	11	4.6	98	0	80	2.0	3.8	.2	1.8	.04	147	58	0	27	.6	162	7.5	13.5		
15N-01W-22BAD1	175	115	Tcr	H	08-12-75	24	50	0		17	7.6	6.1	1.8	107	0	88	5.4	1.1	.1	2.4	.05	162	74	0	15	.3	182	7.1	13.0		
14N-03W-03DDC1	929		Tcr	P	06-28-72		70			2.6	.2	73	6.8	157	16	155	15	3.8	1.0	.04	.04	266	7	0	91	12	279	8.7	25.5		
					08-07-74		71	10	0	2.9	.2	63	7.0	167	0	137	16	3.3	1.0	.05	.04	247	8	0	89	9.7	302	8.2	26.0	18	200
03DDC2	400		Tcr	P	08-07-74		56	70	60	4.1	.4	45	3.4	121	0	99	8.1	2.3	.6	.44	.17	182	12	0	86	5.7	183	8.0	18.0	6	130
11CCB1	105	1.19	QTs	H	08-13-75	12	49	190		2.6	1.1	30	5.8	107	0	88	4.4	.6	.3	.05	.12	147	11	0	78	3.9	168	7.0	13.0		
25DBD1	220	26.26	Tcr	H	08-13-75	6.9	37	80		11	2.7	50	14	193	0	158	19	4.5	.3	.07	.06	234	39	0	66	3.5	329	7.8	19.0		
14N-02W-06ADC1	125	6.66	QTs	H	08-13-75	13	44	110		5.8	1.6	34	5.2	124	0	102	11	1.8	.2	.11	.16	165	21	0	73	3.2	200	7.4	13.5		
06DCC1	398		Tcr	I	08-13-75	52	59	0		9.8	.4	45	9.4	149	7	134	11	1.8	.4	0	0	217	26	0	72	3.8	257	8.5	19.0		
14N-01W-10CBA1	80	0.20	QTs	H	08-12-75	12	41	2,800		18	9.6	13	1.8	142	0	116	11	3.2	.2	.01	.06	171	84	0	25	.6	230	6.7	12.0		
27ABA1	170	90.80	Tcr	H	08-13-75	16	58	1,200		15	9.6	11	5.0	124	0	102	11	.9	.3	0	.40	173	77	0	22	.5	206	6.8	16.0		
13N-04W-32BDD1	65	39.36	Tcr	H	08-14-75	16	47	20		25	12	8.4	3.0	144	0	118	4.6	1.1	.2	4.9	.09	194	110	0	14	.3	291	7.4	12.5		
13N-03W-05BCB1	101	7.34	QTs	H	08-13-75	10	47	10		48	23	25	5.1	251	0	206	18	8.0	.3	9.0	.04	338	210	9	20	.7	494	7.1	22.5		
06CCC1	963		Tcr	P	06-28-72		84			8.7	.8	73	23	225	0	185	14	3.1	[illegible]	.04	.04	318	25	0	74	6.4	379	8.3	28.0		
					08-07-74	225	64	20	0	10	.7	65	23	226	0	185	11	3.1	.7	.03	.04	289	28	0	71	5.4	369	7.7	28.5	8	120
17ADB1	56	9.86	QTs	H	08-13-75	14	33	100		12	6.8	62	11	266	0	218	4.3	3.0	.5	.01	.63	264	58	0	65	3.5	377	7.8	13.0		
13N-03W-19BAA1	362	3.25	Tcr	H	08-14-75	12	53	260		4.1	1.5	75	8.0	237	0	194	10	2.0	.3	.16	.21	272	16	0	86	8.1	391	8.2	18.0		
13N-02W-21DCD2			QTs	H	08-14-75	9.2	75	60		66	26	23	4.5	59	0	48	230	13	.3	7.2	.18	499	270	220	15	.6	700	6.3	14.5		
13N-01W-21CDC1	225	4.20	Tcr	H	08-14-75	12	57	0		13	6.0	12	6.7	122	0	100	4.0	1.3	.3	.06	.01	161	57	0	28	.7	193	8.0	15.5		
12N-07W-24ADD1S			QTs	U	08-06-73	1	47			20	3.6	24	7.5	129	0	106	22	3.3	.4	.04	.02	912	65	0	41	1.3	273	7.9	15.0	18	0
12N-04W-19CAC1	100	55.10	QTs	H	08-14-75	12	70	1,500		25	8.0	24	3.5	142	0	116	41	4.9	.7	.02	.21	249	95	0	34	1.1	360	7.0	15.0		
34ABB1S			QTs	U	07-08-73	1	54			30	11	13	3.9	167	0	137	13	3.5	.7	1.0	.19	216	120	0	18	.6	264	7.4	13.5	41	0
12N-03W-01CDD1	25	10.35	Tcr	H	08-13-75	12	41	0		30	18	16	.9	232	0	190	5.8	1.6	.2	1.8	.05	236	150	0	19	.6	333	7.0	11.5		
12N-02W-14DAC1	100	38.22	QTs	H	08-14-75	16	66	10		12	4.0	12	5.4	98	0	80	8.2	2.5	.3	.22	.20	160	46	0	33	.8	171	7.3	13.5		
11N-06W-16BCB1S			QTs	H	08-08-73	18	83			25	8.5	130	6.6	171	0	140	180	45	1.8	1.0	.24	570	97	0	73	5.7	783	6.6	14.5	10	1,400
25CAC1	39		QTs	H	10-10-73		52			66	29	48	3.7	392	0	322	41	4.6	.4	6.2	.29	466	280	0	27	1.2	648	7.3	13.0	19	120
11N-05W-20BDD1	195		QTs	S	08-09-73		54			31	5.3	21	6.9	136	0	112	25	6.8	.5	1.8	.10	266	99	0	30	.9	271	7.2	21.0	14	50
29BAC1	250		QTs	P	08-06-74	60	52	30	0	62	12	38	12	240	0	197	68	27	.4	.63	.09	393	200	[illegible]	27	1.2	581	7.1	19.5	4	60
29BCD1	226		QTs	P	08-06-74	200	65	10	0	75	13	67	11	373	0	306	53	13	.4	4.1	.12	490	240	0	36	1.9	728	8.1	16.0	17	90
29BDB1	204		QTs	P	08-06-74	180	53	20	90	81	15	61	14	347	0	285	83	24	.4	2.6	.09	514	260	0	32	1.6	768	8.2	16.0	13	70
11N-04W-12CCB1	78		QTs	U	08-27-73		26			13	2.3	89	8.7	232	0	190	13	17	.1	2.3	.99	294	42	0	79	6.0	447	8.3	15.5	170	590
12CDC1	30		QTs	H	08-27-73		48			20	8.2	13	8.4	119	0	98	8.4	2.1	.2	3.1	.41	181	84	0	23	.6	203	7.0	17.0	3	110
					08-15-75	24	46	90		19	8.8	13	9.0	142	0	116	10	3.3	.1	.04	.36	179	84	0	23	.6	248	6.8	15.5		
11N-02W-18AAC1	441	150(R)	Tcr	I	08-14-75	2,200	81	110		31	19	26	13	283	0	232	11	2.2	.3	.01	.02	323	160	0	25	.9	440	8.0	20.5		
10N-05W-17ACC1	27	13.98	QTs	H	08-15-75	40	39	0		110	34	250	11	910	0	746	180	45	.6	6.3	.09	1,150	410	0	56	5.3	1,810	7.7	14.5		

To convert feet to meters multiply by 0.3048.
To convert gallons per minute to liters per second multiply by 0.06309.

Surface-Water Quality

Three water-quality stations were operated during this study along the 100 mi (161 km) stretch of the Weiser River—Weiser River above the mill pond at Tamarack at river mi 94.8 (km 152.5), Weiser River near Cambridge at river mi 50.3 (km 80.9), and Weiser River near Weiser at river mi 15.1 (km 24.3). These stations were sampled monthly from April 1974 to December 1975. The Weiser River near Weiser station has about three samples per year from 1968, which are also included in basic-data table G.

Water in the Weiser River is generally of good chemical quality and suitable for most uses. Figure 25 shows the dissolved-solids concentrations at the three monthly stations on the Weiser River for the period of study.

In a preceding section, "Ground-Water Contribution to Surface-Water Flow," the effect of ground-water discharge on the specific conductance of surface water was discussed. As the proportion of ground-water discharge to the Middle Fork Weiser River increased the dissolved-solids concentrations the specific conductance also increased (fig. 7).

The dissolved-solids concentrations reflect the quality of the two main sources of water to the Weiser River—ground-water inflow and overland flow from snowmelt. Ground-water discharge dominates streamflow in the fall and winter months and causes the dissolved-solids concentration in the river to increase to maximums of about 100-120 mg/L. In the spring and early summer, snowmelt runoff is dominant and causes the dissolved-solids concentration to decrease to about 50 mg/L. The station Weiser River near Cambridge receives a greater proportion of direct runoff from snowmelt and precipitation, as can be deduced from the precipitation contours on figure 12. The dissolved-solids concentration of the Weiser River is, therefore, lower at Cambridge than at the other two stations.

Tributaries to Weiser River

Specific-conductance measurements were obtained monthly during periods of flow throughout the study period (basic-data table H). The tributary streams derive most of their flow from snowmelt, which lasts 1 to 3 months during the spring. The flow for the remainder of the year is mostly ground-water discharge. Samples of low-flow discharge were collected during the summer months of 1974 (basic-data table H). The purpose of collecting low-flow samples was to chemically characterize ground water discharging to stream channels throughout the basin.

Selected water-quality characteristics of the Weiser River and its tributaries are shown diagrammatically in figure 26. In addition, values of specific conductance are given above each diagram. As generally indicated by the width of the patterns throughout the basin, water discharging to the tributary stream channels contains very low concentrations of dissolved solids. Exceptions are in waters discharging to Dixie, Banner, Warm Springs, and Hog Creeks, which have higher concentrations of dissolved solids. These streams, except Warm Spring Creek, receive water from aquifers that are composed chiefly of sedimentary materials. Flow in Warm Spring Creek is primarily from hot spring discharge.

BASIC-DATA TABLE G

CHEMICAL ANALYSES OF SURFACE WATER FOR SELECTED STATIONS ON THE WEISER RIVER

Date	Time	Instantaneous discharge (ft^3/s)	Dissolved silica (SiO_2) (mg/L)	Dissolved calcium (Ca) (mg/L)	Dissolved magnesium (Mg) (mg/L)	Dissolved sodium (Na) (mg/L)	Dissolved potassium (K) (mg/L)	Bicarbonate (HCO_3) (mg/L)	Carbonate (CO_3) (mg/L)	Alkalinity as ($CaCO_3$) (mg/L)	Dissolved sulfate (SO_4) (mg/L)	Dissolved chloride (Cl) (mg/L)	Dissolved fluoride (F) (mg/L)	Dissolved nitrate plus nitrate (N) (mg/L)	Total phosphorus (P) (mg/L)	Dissolved solids (sum of constituents) (mg/L)	Dissolved solids (t/acre-ft)	Dissolved solids (t/d)	Hardness (Ca, Mg) (mg/L)	Noncarbonate hardness (mg/L)	Percent sodium	Sodium adsorption ratio	(Field) specific conductance (µmhos)	(Field) pH (units)	Temperature (deg. C)	Carbon dioxide (CO_2) (mg/L)
13251490 – Weiser River above Mill Pond at Tamarack, Idaho																										
04-17-74	1640	352	27	6.3	2.0	2.7	.9	32	0	26	1.4	.6	.1	.01	.06	57	.08	54.2	24	0	19	.2	–	7.7	6.5	1.0
05-15-74	1100	144	26	7.6	2.0	3.0	.9	43	0	35	1.1	.5	.0	.10	–	62	.80	24.1	27	0	19	.3	64	7.6	5.0	1.7
06-13-74	0800	40	28	9.8	2.9	3.5	1.1	53	0	43	1.3	.8	.0	.06	.03	74	.10	8.03	36	0	17	.3	--	6.9	13.0	1.1
07-18-74	1540	14	30	12	4.5	4.5	1.3	71	0	58	1.3	.9	.0	.00	.04	90	.12	3.40	49	0	16	.3	117	7.8	20.5	1.8
08-14-74	1135	8.2	29	13	4.3	4.3	1.4	70	0	57	1.4	.5	.0	.26	.05	90	.12	2.00	50	0	15	.3	111	8.0	15.0	--
08-21-74	1000	7.7	29	12	3.8	4.5	1.3	73	0	60	1.5	1.6	.1	.01	.02	90	.12	1.83	46	0	17	.3	118	7.4	13.0	4.6
09-17-74	1320	7.7	30	15	3.8	4.7	1.4	80	0	66	1.6	.9	.1	.01	.04	97	.13	2.02	53	0	16	.3	109	7.8	14.0	2.0
10-16-74	1630	6.0	31	14	5.4	5.9	1.8	84	0	69	1.6	1.9	.1	.03	.04	103	.14	1.68	57	0	18	.3	132	7.2	8.0	8.5
11-12-74	0900	7.7	29	14	4.8	5.7	1.3	77	0	63	6.8	2.5	.1	.01	.05	102	.14	2.12	55	0	18	.3	120	7.8	3.0	2.0
12-10-74	1210	6.4	29	14	5.6	9.2	2.8	87	0	71	6.5	2.8	.1	.01	.03	113	.15	1.95	58	0	25	.5	144	7.6	.5	3.5
01-16-75	1000	7.2	30	14	4.4	7.0	1.8	80	–	66	.9	3.5	.0	.06	.05	101	.14	1.96	53	0	22	.4	135	8.6	.0	.3
02-06-75	1225	7.5	27	16	4.6	5.8	1.8	78	0	64	1.7	3.5	.1	.05	.03	99	.13	2.00	59	0	17	.3	118	8.2	1.0	.8
03-11-75	1350	19	25	13	4.4	4.4	2.0	64	0	53	2.0	1.5	.0	.08	.03	84	.11	4.31	51	0	15	.3	99	7.0	1.0	10
04-16-75	0940	61	22	7.6	2.4	3.2	1.2	41	0	34	1.2	.8	.0	.08	.04	59	.08	9.72	29	0	19	.3	69	7.4	1.0	2.6
05-14-75	1015	508	22	5.5	1.8	2.5	1.0	31	0	25	1.0	.5	.0	.04	.05	50	.07	68.6	21	0	20	.2	58	7.1	17.5	3.9
06-17-75	1305	34	27	9.7	3.0	3.9	1.0	50	0	41	1.6	--	.0	.02	.02	80	.11	7.52	37	0	18	.3	84	7.9	11.0	1.0
07-16-75	1445	12	29	12	3.8	4.5	1.3	65	-	53	.6	.0	.0	.02	.05	83	.11	2.69	46	0	17	.3	101	9.0	11.0	.1
08-13-75	1645	5.0	26	12	4.5	5.4	1.5	64	-	53	2.3	.9	.1	.02	.02	84	.11	1.15	49	0	19	.3	118	9.0	17.0	.1
09-18-75	1320	7.2	28	13	4.1	5.1	1.8	74	--	61	1.4	.2	.1	.01	.04	90	.12	1.76	49	0	18	.3	127	8.4	14.0	.5
10-16-75	1640	7.1	26	16	4.6	5.5	1.5	84	--	69	1.6	.9	.1	.01	.04	98	.13	1.88	59	0	16	.3	127	8.5	9.0	.4
11-13-75	1320	9.1	27	13	4.6	4.9	1.3	76	0	62	1.3	.3	.1	.02	.03	90	.12	2.22	51	0	17	.3	118	8.1	1.0	1.0
12-12-75	1320	31	24	9.1	3.6	3.4	1.2	45	0	37	4.8	1.3	.1	.09	.02	70	.10	5.80	38	0	16	.2	80	7.7	1.5	-
13253750 – Weiser River at Fruitvale, Idaho																										
08-21-74	1215	7.2	32	15	4.5	13	1.7	82	0	--	13	2.6	.1	.00	.01	122	.16	2.33	56	0	33	.8	158	7.9	17.0	--
13255080 – Weiser River at Hornet Creek Road at Council, Idaho																										
08-22-74	1150	78	24	12	3.8	6.8	2.4	60	0	--	3.9	1.4	.1	.00	.02	83	.10	14.7	46	0	21	.4	87	7.5	16.0	--
13257710 – Weiser River at Goodrich, Idaho																										
08-22-74	2055	138	25	11	3.3	5.3	1.7	59	0	--	3.7	1.3	.1	.01	.02	81	.11	29.4	41	0	21	.4	98	7.9	18.0	-
13258500 – Weiser River near Cambridge, Idaho																										
01-17-74	1820	7,480	25	5.9	2.2	4.0	1.6	35	0	29	3.6	1.6	.0	.77	.28	65	.09	1,230	24	0	25	.4	--	7.8	2.5	.9
04-05-74	0930	2,100	17	–	2.9	5.1	1.2	57	0	47	6.9	1.5	.3	.30	.11	78	.11	442	47	0	19	.3	118	7.3	4.5	4.6
04-16-74	1925	1,980	30	7.7	2.7	3.8	1.0	43	0	35	3.4	.7	.1	.03	.09	71	.10	380	30	0	21	.3	--	7.9	10.0	.9
05-16-74	1830	1,500	25	7.1	2.0	3.5	1.0	41	0	34	3.7	.9	.0	.02	--	64	.09	259	26	0	22	.3	66	7.8	8.0	1.0
06-11-74	1330	1,910	21	5.9	1.9	3.1	1.2	35	--	29	3.0	.9	.0	.05	.04	54	.07	278	23	0	22	.3	61	9.0	12.5	.1
07-17-74	0950	100	25	8.6	3.0	4.5	1.2	47	--	39	3.5	1.3	.1	.00	.03	70	.10	18.9	34	0	22	.3	106	7.4	16.0	3.0
08-13-74	0930	104	27	9.9	3.5	6.1	1.6	59	0	48	4.4	1.9	.1	.00	.04	84	.11	23.6	39	0	24	.4	111	7.8	17.5	1.5
08-23-74	1545	136	26	11	3.7	6.5	1.6	60	0	--	5.0	2.3	.1	.48	.01	88	.11	32.3	43	0	24	.4	104	8.2	21.0	--
09-18-74	1605	120	24	10	2.8	7.3	1.5	61	0	50	5.3	2.6	.1	.00	.04	84	.11	27.2	37	0	29	.5	102	7.3	19.0	4.9
10-16-74	0810	75	28	12	4.6	8.1	1.8	70	0	57	6.6	1.9	.1	.01	.03	98	.13	19.8	49	0	26	.5	122	6.8	9.0	18
11-12-74	1600	122	29	13	3.5	8.7	1.5	73	--	60	2.2	1.4	.0	.00	.05	95	.13	31.3	47	0	28	.6	134	8.6	5.0	.3
12-09-74	1430	72	29	12	4.2	8.9	1.6	71	0	58	7.4	2.6	.1	.01	.02	101	.14	19.6	47	0	28	.6	138	7.9	1.5	1.4
01-13-75	1400	134	30	13	4.4	8.5	2.0	71	0	58	7.7	2.8	.1	.13	.04	104	.14	37.6	51	0	26	.5	129	7.6	.5	2.9
02-10-75	1225	163	26	10	4.2	7.9	1.9	59	0	48	6.3	2.5	.1	.23	.05	89	.12	39.2	42	0	28	.5	137	8.1	.5	.7
03-12-75	0805	1,310	27	10	3.5	4.3	1.1	44	0	36	3.8	2.6	.1	.95	.07	78	.11	276	39	0	19	.3	--	7.2	2.0	4.4
04-17-75	0900	1,620	27	7.7	2.8	3.9	1.4	43	0	35	1.8	1.0	.1	.34	.10	68	.09	297	31	0	21	.3	84	8.3	5.5	.3
05-13-75	1640	3,650	24	6.8	2.5	3.5	1.4	42	0	34	1.9	1.3	.1	.13	.15	63	.09	621	27	0	21	.3	73	7.5	9.5	2.1
06-19-75	0725	1,490	21	6.0	1.9	3.2	.9	34	0	28	2.0	1.0	.0	.05	.02	53	.07	213	23	0	23	.3	61	7.7	12.0	1.1
07-15-75	1315	419	25	8.3	2.8	4.6	1.5	43	--	35	1.9	.8	.1	.01	.07	66	.09	74.7	32	0	23	.4	100	8.7	10.5	.1
08-12-75	0845	117	25	9.0	3.0	6.5	1.6	57	--	47	3.4	1.0	.1	.01	.02	78	.11	24.6	35	0	28	.5	102	8.7	19.5	.2
09-17-75	0815	93	26	11	4.0	8.3	1.8	62	--	51	6.0	1.8	.1	.00	.04	90	.12	22.6	44	0	28	.5	116	8.5	16.0	.3
10-15-75	1815	188	–	12	4.1	7.7	1.6	71	--	58	5.7	2.2	.1	.02	.03	76	.10	38.6	47	0	26	.5	121	8.7	11.0	.2
11-11-75	1615	188	25	11	3.8	6.7	1.4	67	--	55	5.0	1.5	.1	.01	.03	88	.12	44.7	43	0	25	.4	120	8.5	4.0	.3
12-13-75	1410	497	27	9.4	3.4	5.0	1.2	46	–	38	3.9	1.8	.1	.20	.03	75	.10	101	37	0	22	.4	85	8.4	1.0	–

13261650 – Weiser River below Little Weiser River near Cambridge, Idaho

08-24-74	1545	148	26	12	3.8	6.8	2.5	69	--	--	4.6	1.7	.1	.10	.03	92	.12	34.4	46	0	23	.4	122	8.7	21.0	--

13261965 – Weiser River at Midvale, Idaho

08-25-74	1500	112	27	15	5.5	7.3	2.3	81	0	--	4.9	2.0	.1	.00	.04	104	.14	32.1	60	0	20	.4	141	8.5	23.5	--

13266000 – Weiser River near Weiser, Idaho

02-22-68	1320	6,210	25	7.6	3.2	6.0	2.4	39	0	32	3.6	7.0	.2	.76	--	77	.10	1,270	32	0	27	.3	93	7.1	4.0	--
07-29-68	1140	290	25	9.7	4.6	7.0	3.8	66	0	54	4.8	1.5	.2	.27	--	90	.13	73.6	43	0	24	.5	124	7.2	22.0	--
10-06-68	1410	105	25	14	6.3	11	3.0	94	0	77	8.0	3.0	.2	.04	--	117	.15	31.8	61	0	27	.6	175	7.4	13.0	--
04-14-69	1100	4,000	26	7.7	3.4	4.1	1.2	49	0	40	2.2	1.0	.1	.13	--	70	.10	778	33	0	20	.3	82	7.3	8.0	--
09-08-69	1500	231	29	12	5.2	8.0	3.2	79	0	65	5.6	1.0	.2	.22	--	104	.16	71.1	52	0	24	.5	137	7.5	21.5	--
01-21-70	1245	6,400	23	7.3	3.2	4.1	2.2	30	8	38	3.4	.0	.2	.29	--	68	.09	334	31	0	21	.3	82	9.2	5.0	--
05-13-70	1920	1,930	27	7.9	3.3	3.8	1.2	49	0	40	1.2	.0	.1	.16	--	69	.09	329	33	0	19	.3	84	7.4	7.5	--
10-13-70	1250	184	30	13	5.7	8.5	2.7	85	0	70	3.8	6.0	.1	.10	--	112	.16	56.6	56	0	24	.5	148	8.1	9.0	--
03-25-71	1545	4,360	30	8.5	3.8	4.3	1.8	53	0	43	2.8	1.3	.0	1.0	.30	83	.11	977	37	0	19	.3	95	7.5	5.0	--
07-30-71	1340	333	28	11	4.2	6.3	2.5	73	0	60	3.3	1.9	.2	.15	.16	94	.13	84.5	45	0	22	.4	114	8.0	21.5	--
09-04-71	1328	310	27	12	5.4	7.6	3.4	80	0	66	3.5	1.6	.4	.23	.13	102	.14	85.4	52	0	23	.5	138	7.6	18.5	--
03-16-72	0925	4,580	30	8.6	3.9	4.0	1.7	50	0	41	2.5	.8	.0	.67	.18	79	.11	977	38	0	18	.3	86	7.2	8.0	--
07-16-72	1535	299	24	11	4.3	6.8	2.7	68	0	56	10	2.0	.3	.28	.18	96	.13	77.5	45	0	23	.4	122	6.9	22.5	--
09-19-72	1520	266	27	13	5.2	8.5	2.9	82	0	67	5.8	2.1	.3	.92	.13	109	.15	78.3	54	0	24	.5	143	7.8	16.5	--
10-20-72	1730	176	26	16	5.9	9.1	2.8	93	0	76	6.0	2.4	.2	.02	.09	114	.16	54.2	64	0	23	.5	153	8.1	13.5	1.2
05-14-73	1010	1,660	24	8.3	2.7	3.5	1.3	47	0	39	2.1	.9	.0	.07	.05	66	.09	296	32	0	19	.3	80	6.9	14.5	9.5
09-25-73	1245	188	23	15	5.9	9.4	3.2	58	0	72	6.6	2.9	.1	.06	.17	110	.15	55.8	62	0	24	.5	162	8.2	14.5	.9
04-09-74	1010	2,920	30	9.2	3.6	4.5	1.5	53	0	43	3.8	.8	.1	.25	.13	81	.11	639	38	0	20	.3	97	7.4	7.5	3.4
04-15-74	1740	2,750	32	9.2	3.5	4.1	1.4	53	0	43	2.8	.8	.2	.12	.08	81	.11	601	37	0	19	.3	--	7.9	10.5	1.1
05-13-74	1615	3,000	25	7.6	2.3	3.3	1.2	42	0	34	1.9	.7	.0	.08	--	63	.09	510	28	0	19	.3	72	7.6	9.0	1.7
06-14-74	1230	3,805	20	5.8	1.8	3.0	1.4	33	0	27	2.4	1.5	.0	.20	.06	53	.07	551	22	0	22	.3	62	6.7	14.0	11
07-16-74	1145	542	25	11	4.2	5.8	1.9	58	0	48	4.0	1.1	.1	.06	.06	82	.11	120	45	0	21	.4	122	7.8	19.0	1.5
08-12-74	1120	450	29	14	4.8	7.4	3.6	75	0	62	5.0	2.0	.1	1.1	.18	108	.15	131	55	0	21	.4	170	7.5	19.5	3.8
08-27-74	1415	254	27	11	5.1	7.6	3.3	77	--	63	5.5	3.4	.1	.23	.21	102	.14	70.0	48	0	24	.5	139	8.5	24.0	.4
09-16-74	1215	257	25	14	4.2	7.4	3.1	82	0	67	5.5	2.0	.1	.16	.17	102	.14	70.8	52	0	22	.4	129	7.1	16.0	10
09-26-74	1315	202	24	15	5.4	14	2.7	84	0	69	5.7	2.7	.1	.38	.14	113	.15	61.6	60	0	33	.8	150	7.3	19.5	6.7
10-17-74	1215	220	24	15	6.3	9.1	2.8	91	0	75	6.3	3.1	.1	.14	.06	112	.15	66.5	63	0	23	.5	134	8.2	12.0	.9
11-13-74	1440	200	28	15	5.0	8.8	2.1	89	0	73	6.3	2.6	.1	.03	.04	112	.15	60.5	58	0	24	.5	132	8.0	6.5	1.4
12-13-74	1200	193	31	14	5.0	8.1	1.6	85	0	70	2.1	1.4	.1	.00	.03	105	.14	54.7	56	0	23	.5	162	7.6	1.0	3.4
01-13-75	1037	219	31	15	5.4	9.1	2.6	91	--	75	6.7	1.9	.1	--	.05	118	.16	69.8	60	0	24	.5	126	8.7	.0	.3
03-14-75	1205	2,640	28	9.2	4.7	4.9	2.6	53	0	43	4.7	2.7	.1	1.1	.10	88	.12	627	42	0	19	.3	95	7.9	5.0	--
04-18-75	1125	2,870	28	10	3.5	4.1	1.6	48	0	39	2.1	1.0	.1	.44	.12	76	.10	589	39	0	18	.3	87	7.8	8.5	1.2
05-16-75	1430	6,810	23	6.7	2.3	3.1	1.5	38	0	31	.4	.8	.1	.28	.42	59	.08	1,080	26	0	19	.3	63	7.9	10.0	.8
06-19-75	1045	2,230	22	6.7	2.0	3.4	1.2	38	0	31	1.2	.7	.0	.09	.03	56	.08	337	25	0	22	.3	--	7.9	10.5	.8
07-17-75	0825	549	27	11	3.4	5.5	2.1	56	--	46	2.7	.7	.1	.07	.06	80	.11	119	41	0	21	.4	130	9.0	12.0	.1
08-14-75	1200	360	27	12	3.9	7.7	3.4	63	--	52	4.7	1.8	.1	.18	.13	92	.13	89.4	46	0	25	.5	129	8.6	20.0	.3
09-19-75	1130	332	28	12	4.1	8.4	3.5	73	--	60	4.7	1.6	.2	.10	.17	99	.13	88.7	47	0	26	.5	129	8.6	14.0	.3
10-17-75	0920	301	23	12	4.9	8.1	2.3	82	--	67	5.3	1.9	.1	.00	.03	98	.13	79.0	50	0	25	.5	144	8.5	10.0	.4
11-08-75	1225	383	27	12	4.7	6.8	1.9	81	--	66	3.0	2.3	.1	.02	.07	98	.13	101	49	0	22	.4	126	8.4	6.0	.5
11-13-75	1620	328	25	13	5.0	7.0	1.8	78	--	64	4.3	1.3	.1	.01	.02	96	.13	85.0	53	0	22	.4	138	8.4	4.0	.5
12-13-75	1625	785	27	10	3.9	4.7	1.5	50	--	41	3.1	1.7	.1	.24	.04	78	.11	165	41	0	19	.3	85	8.4	1.0	--
12-22-75	1100	314	32	15	5.1	8.2	1.9	83	0	68	5.6	3.3	.1	.23	.04	113	.15	95.8	58	0	23	.5	131	--	0.0	--

13267400 – Weiser River below Lower Payette Canal near Weiser, Idaho

08-28-74	1245	73	25	19	6.7	18	3.8	122	0	--	16	4.4	.3	.30	.26	155	.21	30.7	75	0	33	.9	246	8.1	22.8	--

13268800 – Weiser River at mouth at Weiser, Idaho

08-27-74	1040	97	28	22	7.8	20	4.6	137	0	--	18	6.7	.3	.50	.27	177	.23	44.5	87	0	32	.9	251	8.2	20.0	--

To convert cubic feet per second to cubic meters per second multiply by 0.02832.

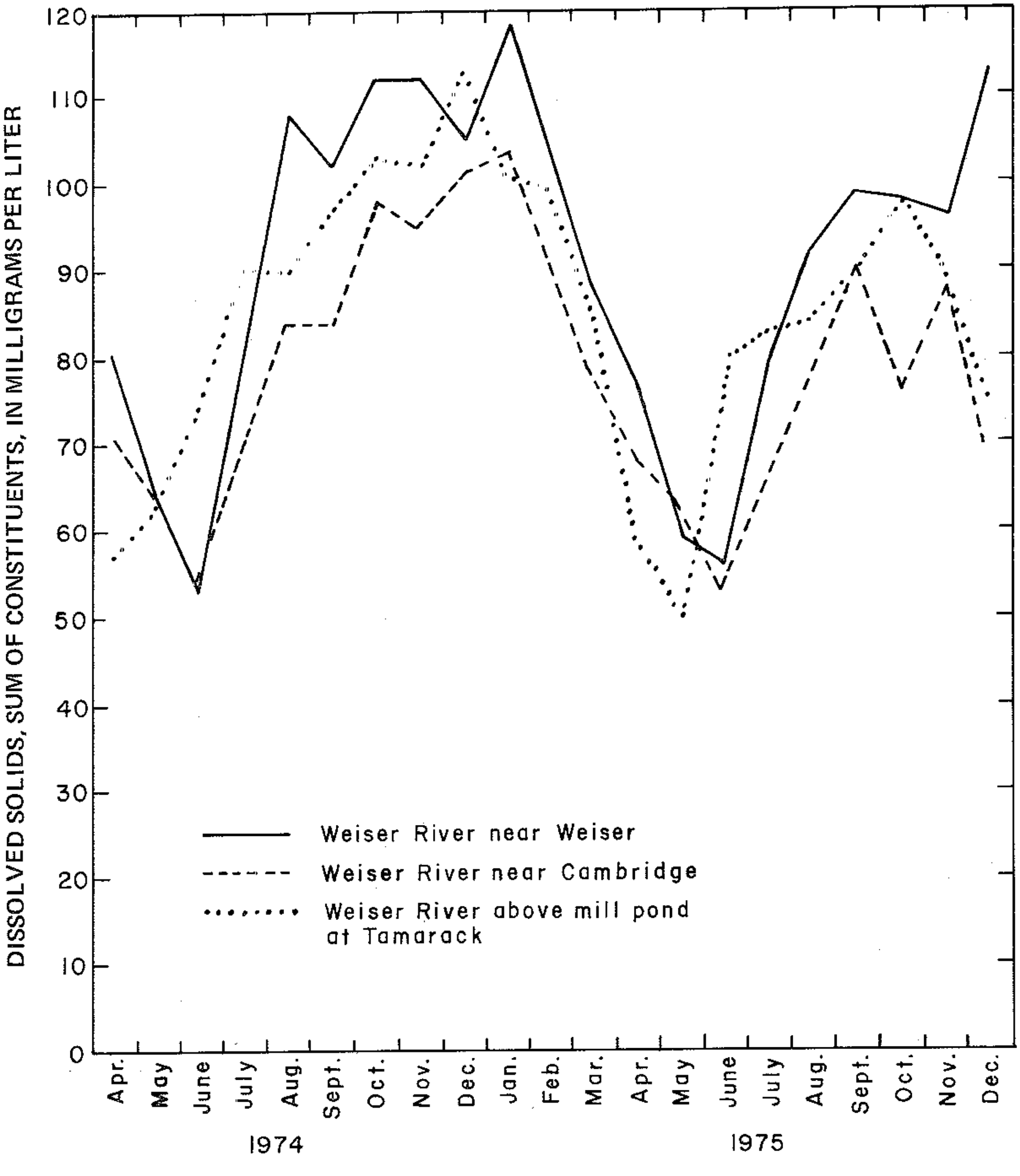


FIGURE 25. Dissolved-solids concentrations at selected sites on the Weiser River, April 1974 to December 1975.

BASIC-DATA TABLE H

CHEMICAL ANALYSES OF SURFACE WATER FOR SELECTED TRIBUTARIES IN THE WEISER RIVER BASIN

Date	Time	Instantaneous discharge (ft³/s)	Dissolved silica (SiO_2) (mg/L)	Dissolved calcium (Ca) (mg/L)	Dissolved magnesium (Mg) (mg/L)	Dissolved sodium (Na) (mg/L)	Dissolved potassium (K) (mg/L)	Bicarbonate (HCO_3) (mg/L)	Carbonate (CO_3) (mg/L)	Alkalinity as ($CaCO_3$) (mg/L)	Dissolved sulfate (SO_4) (mg/L)	Dissolved chloride (Cl) (mg/L)	Dissolved fluoride (F) (mg/L)	Dissolved nitrite plus nitrate (N) (mg/L)	Total phosphorus (P) (mg/L)	Dissolved solids (sum of constituents) (mg/L)	Dissolved solids (t/acre-ft)	Dissolved solids (t/d)	Hardness (Ca, Mg) (mg/L)	Noncarbonate hardness (mg/L)	Percent sodium	Sodium adsorption ratio	(Field) Specific conductance (µmhos)	(Field) pH (units)	Temperature (deg. C)
13253000 -- East Fork Weiser River near Starkey, Idaho (Latitude 44° 50′ 42″, Longitude 116° 22′ 19.01″)																									
04-17-74	1810	135	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	73	--	7.5
05-15-74	1000	144	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	69	--	3.0
06-13-74	1015	180	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	51	--	4.5
07-18-74	1425	41	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	84	--	13.0
08-14-74	1230	3.9	33	14	4.9	5.3	1.3	76	0	62	2.2	1.0	.1	.00	.04	99	.13	1.04	55	0	17	.3	122	8.1	12.5
13253850 – West Fork Weiser River near Tamarack, Idaho (Latitude 44° 54′ 43″, Longitude 116° 29′ 42″)																									
05-15-74	1335	92	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	61	--	4.5
06-12-74	1200	40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	60	--	12.0
07-19-74	0915	7.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	106	--	14.0
08-14-74	0945	4.4	30	10	3.8	5.8	1.3	70	--	57	1.5	1.1	.1	.07	.02	88	.12	1.05	41	0	23	.4	111	--	12.0
09-17-74	1115	2.6	30	12	4.5	5.1	1.5	75	0	62	1.4	.8	.1	.00	.03	92	.13	.65	49	0	18	.3	112	7.1	9.5
10-16-74	1715	2.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	115	--	8.0
11-12-74	1050	2.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	111	--	3.0
12-10-74	1430	3.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	116	--	.5
02-11-75	1145	2.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	112	--	1.0
03-11-75	0930	9.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	100	--	1.5
04-16-74	1420	41	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	85	--	8.0
05-14-74	1255	510	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	58	--	6.0
06-17-75	1005	30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	61	--	7.0
07-16-75	1135	6.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	120	--	6.5
08-12-75	1707	2.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	107	--	18.0
09-18-75	1705	1.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	115	--	12.0
10-16-75	1425	2.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	109	--	8.0
11-13-75	0946	3.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	100	--	.0
12-12-75	1058	14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	86	--	2.0
13255200 – Mill Creek near Council, Idaho (Latitude 44° 45′ 51″, Longitude 116° 23′ 18.01″)																									
04-18-74	0830	32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	80	--	5.0
05-15-74	1750	40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	69	--	6.0
06-13-74	1215	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	76	--	8.0
07-18-74	1305	16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	85	--	10.0
08-14-74	1200	5.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
09-17-74	1425	4.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9.5
10-16-74	1430	4.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	107	--	6.5
11-12-74	0915	4.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	106	--	2.0
12-10-74	1015	5.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	101	--	.5
01-14-75	1435	4.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	93	--	2.0
02-11-75	1310	4.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	84	--	2.5
03-11-75	1630	6.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	88	--	3.0
04-15-75	1620	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	95	--	4.0
05-15-75	1355	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	73	--	6.5
06-17-75	1410	40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	64	--	6.0
07-16-75	1708	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	102	--	5.0
08-13-75	1435	3.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	97	--	13.0
09-18-75	1325	7.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	91	--	8.0
10-16-75	1035	7.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	98	--	6.0
11-12-75	1312	6.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	97	--	1.0
12-12-75	1425	8.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	101	--	1.5
13255280 – North Hornet Creek near Council, Idaho (Latitude 44° 51′ 40″, Longitude 116° 34′ 44.01″)																									
04-18-74	1330	157	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	49	--	7.5
05-15-74	1620	16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	69	--	7.5
06-12-74	0945	3.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	98	--	11.0
07-19-74	1115	.56	41	14	5.5	7.5	2.0	71	0	58	14	1.3	.1	.03	.05	121	.16	.19	58	0	21	.4	146	7.4	15.5
08-14-75	0815	.38	38	15	6.4	9.1	1.9	80	0	66	17	1.7	.1	.03	.03	129	.18	.12	64	0	23	.5	175	7.8	14.0
09-17-74	0920	.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	180	--	11.5

Basic-Data Table H – continued

Date	Time	Instantaneous discharge (ft³/s)	Dissolved silica (SiO_2) (mg/L)	Dissolved calcium (Ca) (mg/L)	Dissolved magnesium (Mg) (mg/L)	Dissolved sodium (Na) (mg/L)	Dissolved potassium (K) (mg/L)	Bicarbonate (HCO_3) (mg/L)	Carbonate (CO_3) (mg/L)	Alkalinity as ($CaCO_3$) (mg/L)	Dissolved sulfate (SO_4) (mg/L)	Dissolved chloride (Cl) (mg/L)	Dissolved fluoride (F) (mg/L)	Dissolved nitrite plus nitrate (N) (mg/L)	Total phosphorus (P) (mg/L)	Dissolved solids (sum of constituents) (mg/L)	Dissolved solids (t/acre-ft)	Dissolved solids (t/d)	Hardness (Ca, Mg) (mg/L)	Noncarbonate hardness (mg/L)	Percent sodium	Sodium adsorption ratio	(Field) Specific conductance (µmhos)	(Field) pH (units)	Temperature (deg. C)
13255280 – Cottonwood Creek above diversion near Council, Idaho (Latitude 44° 40′ 53″, Longitude 116° 22′ 39.01″) - continued																									
10-16-74	1835	.57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	164	--	10.5
11-12-74	1205	1.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	108	--	16.0
12-10-74	1615	1.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	154	--	1.5
01-14-75	1035	1.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	118	--	0.5
02-11-75	1000	1.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	128	--	0.5
03-11-75	1137	29	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	176	--	2.0
04-14-75	1300	102	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	68	--	5.0
05-15-75	1550	142	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	51	--	11.0
06-16-75	0900	4.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	95	--	9.5
07-15-75	0930	1.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	143	--	6.0
08-12-75	1520	.03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	161	--	18.0
09-18-75	1820	.10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	230	--	13.0
10-16-75	1215	1.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	146	--	3.0
11-12-75	1500	3.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	129	--	4.0
12-12-75	0922	16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	85	--	2.0
13255750 – Cottonwood Creek above diversion near Council, Idaho (Latitude 44° 40′ 53″, Longitude 116° 22′ 39.01″)																									
04-18-74	1715	102	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	64	--	7.0
05-16-74	1010	82	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	57	--	3.0
06-13-74	1045	192	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	85	--	6.0
07-18-74	1145	28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	61	--	11.5
08-14-74	1440	8.1	25	7.4	2.2	3.3	.7	44	0	36	1.1	.7	.1	.13	.02	63	.09	1.38	28	0	20	.3	85	8.0	14.0
09-17-74	1540	3.4	24	7.6	1.6	3.8	.7	45	--	37	1.6	.7	.1	.03	.01	62	.08	.57	26	0	24	.3	64	8.8	13.0
10-16-74	1300	3.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	67	--	6.0
11-12-74	1350	3.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	81	--	3.5
12-11-74	1350	4.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	75	--	.0
01-14-75	1600	4.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	75	--	1.0
02-11-75	1510	4.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	85	--	1.5
03-11-75	1315	18	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	74	--	4.0
04-15-75	0915	30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	69	--	2.5
05-15-75	1234	254	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	54	--	5.5
06-17-75	1620	128	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	45	--	6.5
07-15-75	1850	26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	70	--	5.5
08-13-75	1247	6.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	70	--	14.0
09-18-75	1200	3.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	77	--	9.0
10-16-75	0839	7.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5.0
11-12-75	1217	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	72	--	.0
12-12-75	1325	23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	75	--	2.0
13256800 – Middle Fork Weiser River above Fall Creek near Mesa, Idaho (Latitude 44° 38′ 43″, Longitude 116° 22′ 23.01″)																									
04-19-74	1310	274	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	75	--	7.5
05-17-74	1030	313	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	59	--	5.0
06-13-74	1405	707	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	37	--	9.5
07-18-74	1025	131	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	61	--	10.0
08-13-74	1210	54	27	7.7	2.9	4.9	1.3	49	0	40	3.5	1.6	.1	.07	.04	73	.10	.6	31	0	25	.4	95	7.7	14.0
09-18-74	1320	29	29	10	2.0	5.8	1.1	54	0	44	5.2	1.6	.1	.01	.05	81	.11	.36	33	0	27	.4	87	8.0	10.5
10-16-74	1135	28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	105	--	5.5
11-12-74	1445	25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	95	--	4.0
12-11-74	1210	35	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	105	--	.0
01-15-75	1305	29	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	96	--	.0
02-10-75	1410	25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	104	--	1.5
03-12-75	1315	54	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	96	--	3.5
04-17-75	1045	64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	106	--	4.0
05-15-75	1751	689	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	54	--	5.5
06-17-75	1653	385	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	40	--	7.0
07-16-75	1843	114	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	73	--	7.0
08-13-75	1019	39	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	83	--	13.0
09-17-75	1355	52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	97	--	13.5
10-15-75	1537	55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	92	--	8.0
11-12-75	1032	37	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	84	--	.0
12-13-75	1019	77	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	80	--	.0

13257600 — Johnson Creek near Goodrich, Idaho (Latitude 44° 40′ 30″, Longitude 116° 32′ 06.01″)

04-19-74	1715	109	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	84	--	8.5
05-16-74	1305	97	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	52	--	6.5
06-04-74	1620	146	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.0
06-13-74	1520	128	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	45	--	13.5
07-17-74	1515	17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	80	--	19.5
08-13-74	1420	6.8	29	8.8	3.2	3.7	1.5	53	0	43	1.5	.9	.1	.08	.04	75	.10	1.38	35	0	18	.3	90	8.0	18.5
10-16-74	0915	3.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	93	--	7.0
11-13-74	0930	4.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	101	--	2.5
12-11-74	1030	4.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	94	--	1.0
01-15-75	1000	5.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	92	--	1.5
02-12-75	1245	32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	67	--	1.0
03-12-75	1030	32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	73	--	3.0
04-16-75	1105	40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	73	--	5.5
05-15-75	1020	182	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	50	--	5.0
06-18-75	0843	81	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	44	--	7.0
07-15-75	1645	17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	79	--	11.0
08-12-75	1217	3.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	81	--	19.0
09-17-75	1536	2.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	94	--	18.0
10-15-75	1344	6.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	90	--	1.0
11-11-75	1459	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	89	--	4.0
12-11-75	0905	27	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	70	--	2.0

13257700 — Dry Creek at Goodrich, Idaho (Latitude 44° 39′ 15″, Longitude 116° 33′ 19.01″)

04-19-74	1835	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	53	--	13.0
05-16-74	1430	2.6	33	6.4	2.2	2.8	1.3	40	0	33	1.1	.6	.4	.01	.05	68	.09	.48	25	0	19	.2	62	7.8	15.5
06-13-74	1680	.34	38	8.0	2.8	4.3	2.0	46	0	38	1.8	.5	.0	.03	.05	80	.11	.07	32	0	22	.3	69	6.7	24.5
02-12-75	1325	32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	56	--	2.0
03-12-75	1135	36	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	53	--	4.0
04-16-75	1145	24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	64	--	9.0
05-15-75	0930	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	54	--	10.0
06-18-75	0750	.72	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	75	--	6.5
11-11-75	1340	.47	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	84	--	8.0
12-11-75	1000	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	63	--	4.0

13257800 — Goodrich Creek near Goodrich, Idaho (Latitude 44° 39′ 58″, Longitude 116° 35′ 52.01″)

04-19-74	1940	75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	57	--	6.0
05-16-74	1615	64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	50	--	6.0
06-04-74	1445	159	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.0
06-14-74	1010	194	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	39	--	6.0
07-17-74	1350	34	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	58	--	13.0
08-13-74	1335	10	23	7.5	2.0	2.6	1.0	38	0	31	.8	.7	.0	2.7	.03	68	.09	1.91	27	0	17	.2	69	7.5	13.0
09-18-74	0935	4.6	23	7.6	1.6	2.5	.8	42	0	34	1.4	1.1	.1	.05	.02	59	.08	.73	26	0	17	.2	58	8.0	9.0
10-16-74	1025	3.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	42	--	6.0
11-13-74	0915	3.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	79	--	2.0
12-11-74	0910	3.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	82	--	.0
01-15-75	1112	3.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	80	--	1.0
02-12-75	1505	11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	69	--	1.0
03-12-75	1200	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	64	--	3.5
04-16-75	1215	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	78	--	6.0
05-15-75	0915	111	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	36	--	4.5
06-18-75	0943	123	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	36	--	6.0
07-15-75	1515	31	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	52	--	6.0
08-12-75	1050	9.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	60	--	13.0
09-17-75	1700	5.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	69	--	15.0
10-15-75	1205	6.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	67	--	7.0
11-11-75	1306	7.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	66	--	2.0
12-11-75	1040	14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	48	--	2.0

13260090 — West Pine Creek near Cambridge, Idaho (Latitude 44° 35′ 16″, Longitude 116° 45′ 25.01″)

04-16-74	1730	48	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	89	--	11.0
05-16-74	1800	35	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	91	--	7.0
06-11-74	1150	37	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	93	--	10.5
07-17-74	0915	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	143	--	12.0
08-13-74	0740	5.7	30	17	4.4	4.6	1.4	83	0	68	2.4	.9	.1	.04	.03	102	.14	1.59	61	0	14	.3	143	7.8	12.0
09-19-74	0910	3.4	30	17	4.6	4.4	1.5	89	0	73	1.6	.9	.1	.00	.04	104	.14	.95	61	0	13	.2	130	7.2	11.0
10-15-74	1750	3.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	143	--	10.0
11-11-74	1640	3.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	140	--	5.0
12-09-74	1545	3.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	134	--	1.5
01-13-75	1500	5.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	126	--	.0
02-10-75	1205	4.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	130	--	3.0
03-10-75	1530	54	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	83	--	7.0
04-17-75	0808	73	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	88	--	5.5

Basic-Data Table H — continued

Date	Time	Instantaneous discharge (ft³/s)	Dissolved silica (SiO_2) (mg/L)	Dissolved calcium (Ca) (mg/L)	Dissolved magnesium (Mg) (mg/L)	Dissolved sodium (Na) (mg/L)	Dissolved potassium (K) (mg/L)	Bicarbonate (HCO_3) (mg/L)	Carbonate (CO_3) (mg/L)	Alkalinity as ($CaCO_3$) (mg/L)	Dissolved sulfate (SO_4) (mg/L)	Dissolved chloride (Cl) (mg/L)	Dissolved fluoride (F) (mg/L)	Dissolved nitrite plus nitrate (N) (mg/L)	Total phosphorus (P) (mg/L)	Dissolved solids (sum of constituents) (mg/L)	Dissolved solids (t/acre-ft)	Dissolved solids (t/d)	Hardness (Ca, Mg) (mg/L)	Noncarbonate hardness (mg/L)	Percent sodium	Sodium adsorption ratio	(Field) Specific conductance (µmhos)	(Field) pH (units)	Temperature (deg. C)
13260090 — West Pine Creek near Cambridge, Idaho (Latitude 44° 35' 16", Longitude 116° 45' 25.01") - continued																									
05-13-75	1325	84	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	84	--	10.0
06-16-75	1828	39	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	87	--	11.0
07-22-75	1443	8.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	122	--	19.0
08-12-75	0811	4.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	123	--	13.0
09-16-75	1507	3.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	142	--	18.0
10-15-75	1000	4.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	139	--	7.0
11-11-75	1116	4.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	130	--	2.0
12-13-75	0843	80	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	106	--	.0
13260500 — Little Weiser River at Ruby Ranch near Indian Valley, Idaho (Latitude 44° 29' 22", Longitude 116° 23' 24")																									
04-19-74	1320	208	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	78	--	7.0
05-17-74	1310	157	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	67	--	5.5
06-11-74	1515	500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	45	--	9.5
07-17-74	1205	88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	74	--	16.5
08-13-74	1030	32	28	9.2	3.3	3.8	1.2	52	--	43	1.5	.7	.1	.04	.03	74	.10	6.39	37	0	18	.3	95	--	13.0
09-18-74	1515	16	28	12	3.0	3.9	1.6	62	0	51	2.0	1.3	.1	.00	.04	82	.11	3.54	42	0	16	.3	84	7.2	14.5
10-17-74	0900	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	99	--	5.5
11-13-74	1030	14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	113	--	2.5
12-11-74	1515	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	107	--	.5
01-16-75	1320	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	99	--	.0
02-10-75	1550	29	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	98	--	2.5
03-12-75	1435	93	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	92	--	5.0
04-17-75	1233	113	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	87	--	7.0
05-16-75	1135	727	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	70	--	5.5
06-18-75	1213	457	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	45	--	6.0
07-17-75	1209	96	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	73	--	5.0
08-13-75	0915	27	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	78	--	13.0
09-17-75	1145	16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	98	--	14.0
10-15-75	1725	23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	89	--	11.0
11-12-75	0900	16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	94	--	.0
12-13-75	1255	70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	90	--	.0
13261670 — Dixie Creek near Cambridge, Idaho (Latitude 44° 29' 56", Longitude 116° 36' 38")																									
01-22-74	0830	14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	129	--	.0
04-09-74	1450	6.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	207	--	7.0
04-20-74	1235	1.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	196	--	12.5
05-14-74	1650	.20	35	29	13	16	4.3	176	3	149	10	1.9	.5	.78	.10	203	.28	.11	130	0	21	.6	262	8.4	16.0
06-11-74	1850	.01	41	45	24	13	1.8	201	0	165	15	8.4	.1	14	.06	309	.42	.01	210	46	12	.4	466	6.9	11.5
10-15-75	1845	<.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	645	--	11.0
11-12-74	--	<.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	491	--	6.5
12-09-74	1400	<.02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	494	--	1.0
01-13-75	1325	.04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	398	--	4.0
02-06-75	1450	<.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	472	--	2.5
02-13-75	1545	25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	107	--	.0
03-12-75	1710	51	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	117	--	8.0
04-17-75	1630	2.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	190	--	17.0
05-16-75	0940	.51	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	249	--	12.0
06-16-75	1710	.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	367	--	22.0
07-15-75	1230	<.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	420	--	23.0
12-11-75	1235	.10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	190	--	1.0
13261880 — Keithly Creek above diversion near Midvale, Idaho (Latitude 44° 31' 02', Longitude 116° 49' 53")																									
04-16-74	1455	60	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	73	--	9.0
05-17-74	1520	22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	82	--	6.0
06-10-74	1715	14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	90	--	15.5
07-16-74	1555	6.2	35	14	5.0	4.2	1.9	74	0	61	1.8	1.1	.1	.08	.03	100	.14	1.67	56	0	14	.2	138	7.6	17.0
08-15-74	0800	7.5	34	14	5.0	4.0	1.9	77	0	63	1.1	1.3	.2	.14	.04	100	.14	2.02	56	0	13	.2	132	8.2	11.0
09-19-74	1030	6.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	109	--	11.0
10-15-74	1630	5.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	117	--	9.5
11-13-74	1210	5.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	126	--	6.0
12-12-74	0910	4.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	129	--	1.5

01-16-75	1505	5.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	119	--	4.0
02-12-75	0920	5.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	117	--	3.0
03-10-75	1412	23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	89	--	6.5
04-14-75	1457	48	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	84	--	5.0
05-13-75	0840	121	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	63	--	5.0
06-16-75	1545	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	75	--	13.0
07-15-75	1037	6.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	113	--	15.0
08-11-75	1638	5.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	118	--	17.0
09-16-75	1332	4.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	119	--	15.0
10-15-75	0818	5.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	125	--	8.0
11-11-75	0947	6.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	124	--	2.0
12-10-75	1500	8.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	117	--	4.5

13263150 – Banner Creek near Midvale, Idaho (Latitude 44° 26′ 00″, Longitude 116° 43′ 28″)

04-16-74	1200	3.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	387	--	10.5
05-14-74	1400	1.6	38	43	29	21	6.3	304	5	258	12	3.8	.5	1.6	.13	316	.43	1.38	230	0	16	.6	421	8.5	12.5
06-11-74	100	.82	45	47	31	0.2	8.1	349	0	286	10	4.8	.2	1.7	.19	351	.48	.78	250	0	18	.7	407	6.8	12.5
07-15-74	1525	.11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	477	--	19.5
10-15-74	1550	.10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	500	--	10.5
11-11-74	1525	.23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	486	--	6.0
12-12-74	1030	.40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	479	--	2.0
01-16-75	1635	1.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	356	--	.0
02-05-75	1415	1.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	419	--	.0
03-14-75	1000	7.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	260	--	1.0
03-20-75	1030	21	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	202	--	2.5
04-18-75	0825	3.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	372	--	4.0
05-13-75	1155	1.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	424	--	12.5
06-16-75	1453	.22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	323	--	17.0
07-15-75	0905	.04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	526	--	17.0
09-16-75	1215	.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	464	--	16.0
10-14-75	1630	.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	494	--	12.0
11-11-75	0815	.29	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	464	--	2.0
12-11-75	1325	.89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	401	--	2.0

13263800 – Mill Creek near Crane, Idaho (Latitude 44° 22′ 20″, Longitude 116° 31′ 50″)

01-17-74	1755	34	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	49	--	4.5
04-20-74	1030	1.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	61	--	10.5
05-14-74	1705	.26	40	6.5	1.6	5.0	2.8	44	0	36	2.2	.5	.1	.01	--	80	.11	.06	23	0	29	.5	71	7.2	14.5
02-05-75	1300	1.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	90	--	.5
02-13-75	1450	252	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	48	--	3.0
03-13-75	1115	8.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	47	--	3.5
04-18-75	0915	2.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	60	--	4.0
05-16-75	1220	.14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	101	--	6.5
12-11-75	1443	2.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	64	--	5.0

13263930 – Tennison Creek near South Crane School, Idaho (Latitude 44°18′ 10″, Longitude 116° 30′ 58″)

01-17-74	1700	34	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	49	--	5.5
04-20-74	0935	1.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	137	--	6.0
05-14-74	1600	.55	46	17	6.8	9.9	5.3	116	0	95	3.7	1.6	.6	.02	.11	148	.20	.22	70	0	22	.5	172	7.9	19.5
06-14-74	0955	.08	55	22	8.8	11	5.9	143	0	117	3.6	1.5	.1	.04	.15	179	.24	.04	91	0	20	.5		6.7	17.0
11-12-74	1705	.10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	237	--	7.0
12-09-74	1300	.40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	195	--	1.5
01-13-75	1215	1.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	123	--	1.0
02-05-75	1200	2.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	144	--	.0
02-13-75	1605	118	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	75	--	3.5
03-13-75	0950	4.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	102	--	2.0
04-18-75	0960	6.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	98	--	4.5
05-16-75	1310	1.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	155	--	18.5
06-18-75	1425	.38	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	178	--	14.0
10-17-75	0820	.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	205	--	5.0
11-13-75	1520	.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	208	--	4.0
12-11-75	1528	1.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	137	--	5.0

13266850 – Mann Creek above reservoir near Weiser, Idaho (Latitude 44° 24′ 48″, Longitude 116° 54′ 34.01″)

04-16-74	0950	178	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	129	--	5.0
05-14-74	1140	145	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	120	--	11.0
06-10-74	1515	70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	120	--	14.5
07-15-74	1335	14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	212	--	18.0
08-12-74	1330	4.8	34	25	8.2	5.1	1.7	123	2	104	5.3	1.3	.1	.07	.06	144	.20	1.87	96	0	10	.2	223	8.3	19.0
09-19-74	1210	2.9	35	27	7.8	6.3	1.6	131	0	107	5.5	1.0	.1	.00	.07	148	.20	1.16	100	0	10	.2	199	7.6	14.5
10-15-74	1500	3.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--	11.0
11-11-74	1435	5.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	210	--	5.5
12-12-74	1015	4.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	197	--	.5

Date	Time	Instan-taneous dis-charge (ft³/s)	Dis-solved silica (SiO_2) (mg/L)	Dis-solved cal-cium (Ca) (mg/L)	Dis-solved magne-sium (Mg) (mg/L)	Dis-solved sodium (Na) (mg/L)	Dis-solved potas-sium (K) (mg/L)	Bicar-bonate (HCO_3) (mg/L)	Car-bonate (CO_3) (mg/L)	Alka-linity as ($CaCO_3$) (mg/L)	Dis-solved sulfate (SO_4) (mg/L)	Dis-solved chlo-ride (Cl) (mg/L)	Dis-solved fluo-ride (F) (mg/L)	Dis-solved nitrite plus nitrate (N) (mg/L)	Total phos-phorus (P) (mg/L)	Dis-solved solids (sum of consti-tuents) (mg/L)	Dis-solved solids (t/acre-ft)	Dis-solved solids (t/d)	Hard-ness (Ca, Mg) (mg/L)	Non-car-bonate hard-ness (mg/L)	Percent sodium	Sodium ad-sorp-tion ratio	(Field) Spe-cific con-duct-ance (µmhos)	(Field) pH (units)	Temper-ature (deg. C)
13266850 -- Mann Creek above reservoir near Weiser, Idaho (Latitude 44° 24′ 48″, Longitude 116° 54′ 34.01″) - continued																									
01-17-75	0910	7.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	197	--	.0
02-07-75	1130	7.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	202	--	.5
03-10-75	1215	77	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	103	--	4.0
04-14-75	1310	229	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	95	--	4.0
05-12-75	1715	314	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	118	--	10.5
06-16-75	1346	65	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	129	--	11.5
07-14-75	1625	17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	204	--	15.0
08-11-75	1441	4.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	184	--	20.0
09-16-75	1135	4.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	167	--	16.0
10-14-75	1545	5.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	194	--	11.0
11-10-75	1655	7.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	196	--	3.0
12-10-75	1340	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	171	--	2.0
13269210 -- Scott Creek above diversions near Weiser, Idaho (Latitude 44° 30′ 40″, Longitude 117° 00′ 37″)																									
04-15-74	1615	6.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	113	--	13.0
05-13-74	1455	1.3	40	24	9.6	9.8	3.3	121	2	103	20	2.4	.5	.01	.07	171	.23	.55	99	0	17	.4	209	8.4	16.5
06-10-74	1335	.68	43	32	13	15	5.3	164	0	135	27	4.0	.2	.06	.14	221	.30	.35	130	0	19	.6	212	9.6	27.5
07-15-74	1135	.10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	419	--	25.0
11-11-75	1100	.21	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	394	--	6.0
12-12-75	1240	.64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	321	--	2.0
01-17-75	1130	.77	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	246	--	.5
02-07-75	0855	.65	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	280	--	.0
02-14-75	1125	2.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	186	--	.0
03-10-75	1055	32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	81	--	3.0
04-14-75	1102	81	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	77	--	5.0
05-12-75	1020	8.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	120	--	10.5
06-16-75	1225	.57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	196	--	22.0
07-22-75	1107	.07	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	258	--	26.0
10-14-75	1358	.23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	410	--	16.0
11-10-75	1417	.30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	358	--	5.0
12-10-75	1135	.80	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	318	--	3.0
13269228 -- Hog Creek near Weiser, Idaho (Latitude 44° 17′ 58″, Longitude 117° 05′ 20″)																									
01-17-74	1315	35	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	214	--	-.5
04-15-74	1530	2.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	282	--	17.0
05-13-74	1315	1.0	37	40	14	41	5.8	223	0	183	59	8.3	.6	.05	.08	316	.43	.88	160	0	35	1.4	414	8.3	20.0
06-10-74	1140	.06	37	37	12	39	6.8	162	6	143	72	8.0	.3	.03	.07	298	.41	.05	140	0	36	1.4	460	8.9	27.0
11-11-74	1200	.10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	628	--	6.5
12-12-74	1350	.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	488	--	2.0
01-17-75	1230	1.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	375	--	.0
02-06-75	1620	1.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	514	--	-2.5
02-14-75	1030	14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	197	--	.0
03-10-75	0950	34	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	137	--	2.5
04-14-75	1005	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	238	--	7.5
05-12-75	1135	2.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	284	--	13.0
10-14-75	1310	.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	607	--	17.0
11-10-75	1517	.24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	560	--	5.0
12-10-75	1045	.79	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	419	--	3.0

To convert cubic feet per second to cubic meters per second multiply by 0.02832.
To convert tons to metric tonnes multiply by 0.9072.
To convert acre-feet to cubic meters multiply by 1233.

Water-Quality Conditions in the Weiser River During a Low-Flow Period

A low-flow study of the Weiser River was made August 20-28, 1974, during a period of little or no precipitation on the basin. The small amounts of precipitation that did fall were not large enough to cause runoff in the basin; consequently, the study was conducted during a period of continuous low flow in the Weiser River. All inflows and outflows were measured. Field measurements included water and air temperatures, specific conductance, pH, and dissolved oxygen. Samples were obtained for the determination of nutrients, which included total nitrite plus nitrate, total phosphorous, and total orthophosphorus.

The data collected during the low-flow study are tabulated in the basic-data table I, and locations of sampling sites and discharge-measuring sites are shown in figure 27. Graphical representations of observed and measured parameters (figs. 28 and 29) show the range in values at each site.

Apparent gains from or losses to the ground water shown in figure 27 are small in some reaches. However, the general relation of the surface and ground water is shown. The Weiser River generally gains from ground-water discharge in its upper reach, loses to ground-water recharge in its middle reach, and gains from ground-water discharge in its lower reach.

Nutrient concentrations in the upper reaches of the Weiser River are low, with some introduction of organic materials near Council and Cambridge. In the lower reaches of the river, nutrient concentrations are high enough to support a large algal population, but because the silt content in the lower reaches of the river masks sunlight, algal growths are not large below Crane Creek.

Specific conductance increased downstream throughout the length of the river from 117 to 247 µmhos, with exceptions resulting from the inflows from West Fork Weiser River, Middle Fork Weiser River, and Crane Creek, which lowered the specific conductance at the point of inflow. The inflow from Little Weiser River increased the specific conductance, possibly because of dissolved solids being carried by irrigation-return water.

Maximum water temperatures generally increased along the river from 15° to 29° C.

The range in percent saturation of dissolved oxygen changed from 98-88 to 159-83 from Tamarack to above Crane Creek. Below Crane Creek, the percent saturation was approximately 130-90 because of less aquatic growth. Levels of pH remained near 8 from Tamarack to Weiser. Generally, throughout all reaches, pH values paralleled dissolved-oxygen concentrations.

Bacteria associated with fecal materials (table 4) were found in the Weiser River at and below Council, below Cambridge, and at the mouth at Weiser.

Pesticides were not detected in the river during low-flow period.

BASIC-DATA TABLE I

WATER-QUALITY DATA FOR LOW-FLOW CONDITIONS IN THE WEISER RIVER AUGUST 20 TO AUGUST 28, 1974

Date	Time	Instantaneous discharge (ft^3/s)	Total nitrite plus nitrate (N) (mg/L)	Total phosphorus (P) (mg/L)	Total ortho phosphorus (P) (mg/L)	*Specific* conductance (μmhos)	(Field) pH (units)	Temperature (deg. C)	Air temperature (deg. C)	*(Field)* Dissolved oxygen (mg/L)	Percent saturation
13251490 – Weiser River above Mill Pond, at Tamarack, Idaho (Latitude 44° 57′ 32″, Longitude 116° 24′ 10.01″)											
8-20-74	0950	7.9	.01	.02	.03	123	8.1	13.5	11.0	8.0	89
8-20-74	1215	7.9	.19	.02	--	121	8.5	15.5	17.0	8.5	98
8-20-74	1625	7.9	.00	.02	.01	110	7.8	14.5	17.0	7.8	88
8-20-74	1935	7.9	.00	.03	.03	114	7.8	14.5	19.0	8.3	93
8-20-74	1000	7.7	.01 *	.02	--	118	7.4	13.0	16.5	8.4	92
13251500 – Weiser River at Tamarack, Idaho (Latitude 44° 56′ 49″, Longitude 116° 22′ 55″)											
8-20-74	0935	7.9	--	--	--	120	8.8	13.5	11.0	8.9	99
8-20-74	1240	7.9	--	--	--	125	--	17.0	17.0	8.8	105
8-20-74	1645	7.9	--	--	--	113	7.6	17.0	16.5	7.8	78
8-20-74	1950	7.0	--	--	--	122	7.6	15.0	13.0	7.9	90
8-21-74	1030	8.0	--	--	--	122	7.5	14.0	22.0	8.6	96
13251700 – Weiser River below Beaver Creek near Tamarack, Idaho (Latitude 44° 55′ 41″, Longitude 116° 22′ 58.01″)											
8-20-74	1020	11	--	--	--	116	8.2	13.0	11.0	9.4	103
8-20-74	1255	11	--	--	--	116	8.6	16.0	17.0	9.3	108
8-20-74	1705	11	--	--	--	114	8.3	17.5	16.5	8.5	102
8-20-74	2000	10	--	--	--	119	7.8	16.0	15.0	8.7	101
8-21-74	1055	11	--	--	--	118	7.8	13.0	25.0	9.8	107
13252000 – Weiser River above East Fork Weiser River, near Fruitvale, Idaho **(Latitude 44° 50′ 56″, Longitude 116° 22′ 39.01″)**											
8-20-74	1040	19	--	--	--	133	8.3	12.0	11.0	9.2	97
8-20-74	1345	19	--	--	--	138	8.7	17.0	17.5	9.2	108
8-20-74	1730	19	--	--	--	128	8.4	17.0	16.0	8.6	100
8-20-74	2015	18	--	--	--	128	8.0	15.0	13.5	8.8	99
8-21-74	1115	19	--	--	--	133	7.9	12.0	21.5	9.8	103
13253200 – Weiser River at Glendale, near Fruitvale, Idaho (Latitude 44° 50′ 08″, Longitude 116° 24′ 24.01″)											
8-20-74	1105	18	--	--	--	126	8.3	15.0	15.5	9.2	102
8-20-74	1400	18	--	--	--	133	8.6	18.0	18.5	9.2	110
8-20-74	1800	17	--	--	--	131	8.2	17.0	21.0	8.7	102
8-20-74	2030	17	--	--	--	132	7.9	16.0	16.0	8.9	100
8-21-74	1135	18	--	--	--	126	8.0	13.5	20.5	9.4	112

13253500 — Weiser River at Starkey, Idaho
(Latitude 44° 50′ 45″, Longitude 116° 26′ 32.01″)

8-20-74	1120	19	--	--	--	126	8.4	15.0	16.0	9.2	102
8-20-74	1430	19	--	--	--	143	8.7	19.0	19.5	9.6	115
8-20-74	1815	18	--	--	--	133	8.3	18.0	23.5	8.6	102
8-20-74	2045	18	--	--	--	131	8.0	17.0	14.0	8.6	106
8-21-74	1150	19	--	--	--	130	7.9	15.0	23.0	9.6	106

13253750 — Weiser River at Fruitvale, Idaho
(Latitude 44° 49′ 04″, Longitude 116° 26′ 56.01″)

8-20-74	1135	7.5	.01	.02	.02	162	8.5	16.0	21.5	9.2	103
8-20-74	1505	7.3	.01	--	.04	164	8.8	22.0	22.5	9.8	125
8-20-74	1830	8.4	.00	.02	.02	158	8.4	20.0	25.0	8.6	109
8-20-74	2100	8.4	.01	.03	.03	148	7.9	18.5	16.0	8.2	104
8-21-74	0915	7.2	.00	--	.01	169	8.3	13.5	14.5	9.1	97
8-21-74	1215	7.2	.00*	.01	--	158	7.9	17.0	23.5	9.8	112
8-21-74	1310	7.2	.00	.01	.01	164	8.3	19.0	20.5	9.9	118
8-21-74	1620	7.2	.00	.03	.03	158	8.3	22.5	26.5	9.5	121
8-21-74	2125	7.0	.02	.02	.02	162	7.8	19.0	20.0	7.9	101
8-22-74	1005	7.0	.00	.01	.01	160	7.8	15.5	19.5	9.6	106

13255060 — Weiser River near White School, near Fruitvale, Idaho
(Latitude 44° 47′ 10″, Longitude 116° 26′ 25.01″)

8-21-74	1005	65	--	--	--	94	8.0	13.5	14.5	9.6	102
8-21-74	1330	65	--	--	--	89	8.0	17.5	23.5	10.0	116
8-21-74	1640	65	--	--	--	82	7.7	20.0	26.0	9.6	116
8-21-74	1900	64	--	--	--	85	--	20.0	27.5	8.5	103
8-22-74	1030	63	--	--	--	86	7.6	15.0	20.0	9.4	103

13255070 — Weiser River near Winkler Cemetery, near Council, Idaho
(Latitude 44° 45′ 10″, Longitude 116° 27′ 30.01″)

8-21-74	1030	71	--	--	--	103	7.8	14.5	17.5	9.5	103
8-21-74	1400	71	--	--	--	107	7.9	17.5	23.0	10.0	116
8-21-74	1655	70	--	--	--	94	7.9	19.0	29.0	9.0	107
8-22-74	1055	70	--	--	--	95	7.4	15.0	20.0	9.0	98

13255080 — Weiser River at Hornet Creek Road, at Council, Idaho
(Latitude 44° 43′ 56″, Longitude 116° 26′ 50.01″)

8-21-74	1100	74	--	--	--	108	7.8	15.5	19.5	9.5	105
8-21-74	1400	73	--	--	--	112	8.0	18.5	24.5	9.8	115
8-21-74	1720	73	--	--	--	103	8.0	20.0	30.0	10.0	121
8-21-74	1920	73	--	--	--	95	8.0	20.0	29.0	9.2	112
8-22-74	0915	78	.02	.02	.03	102	7.4	15.0	16.5	8.8	96
8-22-74	1150	78	--	.02	--	87	7.5	16.0	24.0	9.4	105
8-22-74	1520	78	.01	.03	.03	90	8.2	16.5	22.5	9.0	102
8-22-74	1845	78	.31	.02	.03	95	8.0	18.0	26.5	9.1	107
8-23-74	0850	78	.01	.03	.03	96	7.5	15.0	24.0	8.6	94

13255630 — Weiser River near IOOF Cemetery, near Council, Idaho
(Latitude 44° 42′ 56″, Longitude 116° 27′ 22.01″)

8-21-74	1130	80	--	--	--	114	8.0	16.0	20.5	9.6	107
8-21-74	1515	80	--	--	--	114	8.3	19.0	26.5	10.0	118
8-21-74	1745	79	--	--	--	104	8.1	21.0	28.0	9.1	113
8-21-74	2050	79	--	--	--	101	7.8	19.5	27.5	8.7	104
8-22-74	1030	78	--	--	--	110	7.9	15.5	18.0	8.7	96
8-22-74	1235	78	--	--	--	105	7.7	16.5	22.0	9.7	109
8-22-74	1905	78	--	--	--	104	8.0	18.0	23.0	9.2	107
8-23-74	0945	78	--	--	--	102	7.6	15.0	23.0	8.5	93

13256000 — Weiser River near Council, Idaho
(Latitude 44° 41′ 32″, Longitude 116° 28′ 02.01″)

8-21-74	1210	85	.03	.02	.01	117	8.1	16.5	22.5	10.0	113
8-21-74	1520	85	.11	.03	.01	120	8.6	19.5	26.5	9.9	118
8-21-74	1820	85	.00	.04	.04	100	8.2	21.5	29.5	8.8	109
8-21-74	2020	85	.15	.04	.03	107	8.0	20.5	22.5	8.1	99
8-22-74	1030	85	--	--	--	112	8.0	16.0	17.5	8.6	95
8-22-74	1335	85	.00	.03	.03	103	7.9	16.5	22.5	9.9	112
8-22-74	1930	85	.01	.04	.02	105	8.1	18.5	24.0	9.4	110
8-23-74	1015	85	.00	.02	.03	112	--	15.5	24.5	9.0	99

13257050 — Weiser River below Middle Fork Weiser River, near Mesa, Idaho
(Latitude 44° 40′ 02″, Longitude 116° 29′ 10.01″)

8-22-74	1115	127	--	--	--	110	8.0	13.0	18.5	9.0	94
8-22-74	1545	127	--	--	--	88	8.0	17.0	26.5	9.7	110
8-22-74	1600	129	.00	.03	.04	111	7.5	16.0	24.0	9.2	102
8-23-74	1050	127	--	--	--	97	7.7	15.0	25.5	9.2	100

13257610 — Weiser River below Johnson Creek, near Goodrich, Idaho
(Latitude 44° 39′ 48″, Longitude 116° 31′ 34.01″)

8-22-74	1245	130	--	--	--	117	8.2	15.0	23.5	9.0	98
8-22-74	1650	130	--	--	--	85	8.0	18.0	27.0	9.5	111
8-22-74	2020	130	--	--	--	86	7.7	18.0	21.0	8.8	103
8-23-74	0910	135	.01	.02	.03	105	7.3	13.5	17.0	9.3	98

13257710 — Weiser River at Goodrich, Idaho
(Latitude 44° 39′ 03″, Longitude 116° 33′ 20.01″)

8-22-74	1330	138	.00	.02	.02	108	8.3	16.5	21.5	9.0	103
8-22-74	1715	138	.00	.03	.03	98	8.2	18.0	27.5	10.0	116
8-22-74	2055	138	.01*	.02	--	98	7.9	18.0	22.5	8.6	100
8-23-74	0945	138	--	--	--	112	7.9	14.0	18.0	9.3	99
8-23-74	1200	135	.02	.02	.02	100	7.9	17.0	25.0	9.4	107
8-23-74	1400	136	--	--	--	108	8.4	18.0	26.5	9.8	114
8-23-74	1750	135	.00	.03	.03	98	8.3	23.0	33.0	8.8	112
8-24-74	1000	135	.12	.03	.04	97	7.6	17.0	25.0	8.8	101

13257995 — Weiser River above Bacon Creek, near Goodrich, Idaho
(Latitude 44° 38′ 14″, Longitude 116° 34′ 41.01″)

8-23-74	1235	142	--	--	--	113	7.6	18.0	29.5	9.3	108
8-23-74	1410	142	--	--	--	110	8.3	18.5	26.0	9.8	115
8-23-74	1810	142	--	--	--	126	7.7	22.0	31.5	8.8	110

13258350 — Weiser River near Cove School, near Cambridge, Idaho
(Latitude 44° 35′ 44″, Longitude 116° 36′ 57.01″)

8-23-74	1115	146	--	--	--	113	8.1	15.5	19.0	9.2	100
8-23-74	1305	146	--	--	--	98	7.8	17.5	26.0	9.3	106
8-23-74	1445	146	--	--	--	106	8.3	19.0	26.0	10.4	122
8-23-74	1835	145	--	--	--	102	8.2	22.0	31.5	9.4	118
8-24-74	1125	144	--	--	--	98	7.6	18.0	27.0	9.3	108

13258500 — Weiser River near Cambridge, Idaho
(Latitude 44° 34′ 47″, Longitude 116° 38′ 20″)

8-23-74	1130	136	--	--	--	114	8.2	16.5	22.0	9.2	103
8-23-74	1500	136	--	--	--	117	8.4	19.5	26.5	9.6	114
8-23-74	1545	136	--	.01	--	104	8.2	21.0	32.5	9.6	117
8-23-74	1835	136	.00	.02	.01	104	8.2	22.0	31.0	9.3	116
8-24-74	1045	135	.00	.01	.01	115	8.0	18.0	18.5	8.7	101
8-24-74	1330	134	.00	.01	.01	118	8.4	19.5	27.0	9.2	109
8-24-74	1700	134	.00	.02	.01	107	8.2	22.0	29.0	9.5	119
8-25-74	0910	132	--	--	--	113	7.3	17.5	19.0	7.9	91
8-26-74	0810	130	--	--	--	110	7.5	18.5	18.0	7.6	89
8-26-74	1210	130	--	--	--	115	8.0	20.0	28.0	9.3	111

13259520 — Weiser River below Spring Creek, at Cambridge, Idaho
(Latitude 44° 33′ 54″, Longitude 116° 40′ 35.01″)

8-23-74	1240	130	--	--	--	114	8.2	18.5	23.0	9.0	105
8-23-74	1500	129	---	--	--	116	7.7	21.0	32.0	9.2	113
8-23-74	1515	130	--	--	--	116	8.5	21.0	26.5	9.3	114
8-24-74	1130	129	--	--	--	120	8.0	18.0	20.0	8.5	93
8-24-74	1335	129	--	--	--	105	8.0	21.0	29.5	9.3	113
8-24-74	1725	129	--	--	--	120	7.6	22.0	32.5	10.0	125
8-25-74	0945	128	--	--	--	116	8.1	18.0	19.0	8.3	96
8-26-74	0840	128	--	--	--	114	7.4	18.0	19.0	7.9	92
8-26-74	1140	128	--	--	--	118	7.9	20.5	27.0	9.1	110

13261650 — Weiser River below Little Weiser near Cambridge, Idaho
(Latitude 44° 33′ 06″, Longitude 116° 41′ 44.01″)

8-23-74	1305	148	.02	.07	.07	--	9.0	22.0	24.5	10.6	133
8-23-74	1545	148	.01	.04	.04	130	9.8	21.5	26.5	8.5	105
8-24-74	1140	148	--	--	--	123	7.9	18.5	20.0	9.0	105
8-24-74	1430	148	--	--	--	137	8.9	21.5	29.0	9.8	120
8-24-74	1545	148	.10*	.03	--	122	8.7	21.0	30.0	9.6	117
8-25-74	1000	146	--	--	--	126	8.5	18.0	22.5	8.5	98
8-26-74	0850	144	--	--	--	121	7.4	18.0	20.0	8.4	97
8-26-74	1130	144	--	--	--	122	8.0	20.0	27.5	9.1	109

13261830 — Weiser River below Dixie Creek, near Midvale, Idaho
(Latitude 44° 30′ 47″, Longitude 116° 41′ 14.01″)

8-24-71	1215	72	--	--	--	127	8.5	19.5	22.0	9.6	113
8-24-74	1530	72	--	--	--	123	9.0	22.5	27.5	9.8	123
8-25-74	1015	71	--	--	--	129	8.2	18.0	27.5	8.2	95
8-26-74	0910	71	--	--	--	126	7.5	18.0	21.0	8.8	102
8-26-74	1230	70	--	--	--	129	8.2	21.5	31.0	9.9	122

13261840 — Weiser River above Keithly Creek, near Midvale, Idaho
(Latitude 44° 29′ 48″, Longitude 116° 42′ 37.01″)

8-24-74	1300	95	--	--	--	134	8.2	19.0	25.0	9.0	105
8-25-74	1045	93	.01	.04	.04	167	7.4	18.5	27.5	8.1	94
8-26-74	0930	91	--	--	--	129	7.8	18.5	20.0	8.8	102

13261965 — Weiser River at Midvale, Idaho
(Latitude 44° 28′ 15″, Longitude 116° 43′ 51″)

8-23-74	1315	116	.02	.04	.05	153	8.7	20.0	--	--	--
8-24-74	1315	116	--	--	--	155	8.7	20.0	27.0	10.1	121
8-24-74	1645	115	.03	.05	.04	152	9.0	23.0	30.0	10.0	126
8-25-74	1130	115	--	--	--	162	8.2	20.0	30.0	9.2	110
8-25-74	1500	112	.00	.04	--	141	8.5	23.5	34.0	9.6	123
8-25-74	1545	115	--	--	--	141	8.5	23.5	31.0	9.6	123
8-26-74	0940	114	--	--	--	132	7.7	19.0	20.0	8.7	102
8-26-74	1000	114	--	--	--	144	7.7	19.0	21.0	8.9	104
8-26-74	1240	114	--	--	--	150	8.1	22.0	30.0	10.0	125

13261995 — Weiser River below Dry Creek, near Midvale, Idaho
(Latitude 44° 27′ 13″, Longitude 116° 44′ 27.01″)

8-25-74	1215	121	--	--	--	175	7.9	19.0	30.0	8.5	99
8-25-74	1645	121	.04	.07	.07	178	8.5	24.0	32.0	9.2	119
8-26-74	0920	128	.05	.07	.07	175	7.9	19.0	22.0	7.8	91

13263400 — Weiser River at Concrete, near Mann Creek, Idaho
(Latitude 44° 21′ 02″, Longitude 116° 47′ 54.01″)

8-26-74	1410	132	--	--	--	148	--	25.5	35.0	11.8	154
8-26-74	1600	132	--	--	--	150	--	25.5	35.5	12.2	159
8-26-74	1805	131	--	--	--	155	--	27.0	36.0	10.5	139
8-26-74	2000	131	--	--	--	149	8.7	26.0	32.0	7.5	98
8-26-74	2130	131	--	--	--	161	--	25.0	27.0	6.4	83

13263500 — Weiser River above Crane Creek, near Weiser, Idaho
(Latitude 44° 17′ 20″, Longitude 116° 47′ 22.01″)

8-25-74	1215	133	--	--	--		--	23.0	31.0	12.5	151
8-26-74	1315	133	--	--	--	149	8.5	24.5	34.0	13.0	167

13266000 — Weiser River near Weiser, Idaho
(Latitude 44° 16′ 23″, Longitude 116° 46′ 23″)

8-22-74	1345	250	--	--	--	148	--	19.5	26.5	--	--
8-26-74	1350	256	--	--	--	125	--	24.5	31.0	9.3	120
8-27-74	1415	254	.23*	.21	--	139	8.5	24.0	32.0	9.3	119
8-27-74	1700	254	.14	.20	.16	122	8.7	26.0	35.0	9.2	121
8-28-74	0835	254	.17	.16	.14	121	--	18.5	--	--	--

13266600 — Weiser River at Rebecca, near Weiser, Idaho

8-27-74	1345	38				183	8.2	26.5	32.0	9.5	124
8-27-74	1630	38				195	8.6	29.0	35.0	9.6	130

13267350 — Weiser River below Diversion Dam, near Weiser, Idaho
(Latitude 44° 13′ 36″, Longitude 116° 54′ 34.01″)

8-27-74	1320	96	--	--	--	229	8.0	24.5	31.0	8.0	102
8-27-74	1615	95	--	--	--	236	8.2	27.0	35.0	8.4	111

13267400 — Weiser River below Lower Payette Canal, near Weiser, Idaho
(Latitude 44° 14′ 29″, Longitude 116° 56′ 34.01″)

8-27-74	1130	75	--	--	--	246	8.0	23.5	27.0	8.5	106
8-27-74	1545	74	--	--	--	261	8.4	27.5	35.0	9.8	130
8-28-74	1015	73	--	--	--	254	7.8	21.0	30.0	8.2	99

13268800 — Weiser River at mouth, at Weiser, Idaho
(Latitude 44° 14′ 22″, Longitude 116° 58′ 10.01″)

8-27-74	1040	98	.50*	.27	--	251	7.7	20.5	25.0	7.3	86
8-27-74	1530	98	.35	.24	.19	252	8.2	27.0	35.0	8.8	116
8-28-74	0825	98	.43	.28	.21	238	7.7	19.5	24.0	8.4	97

* Dissolved value.
To convert cubic feet per second to cubic meters per second multiply by 0.02832.

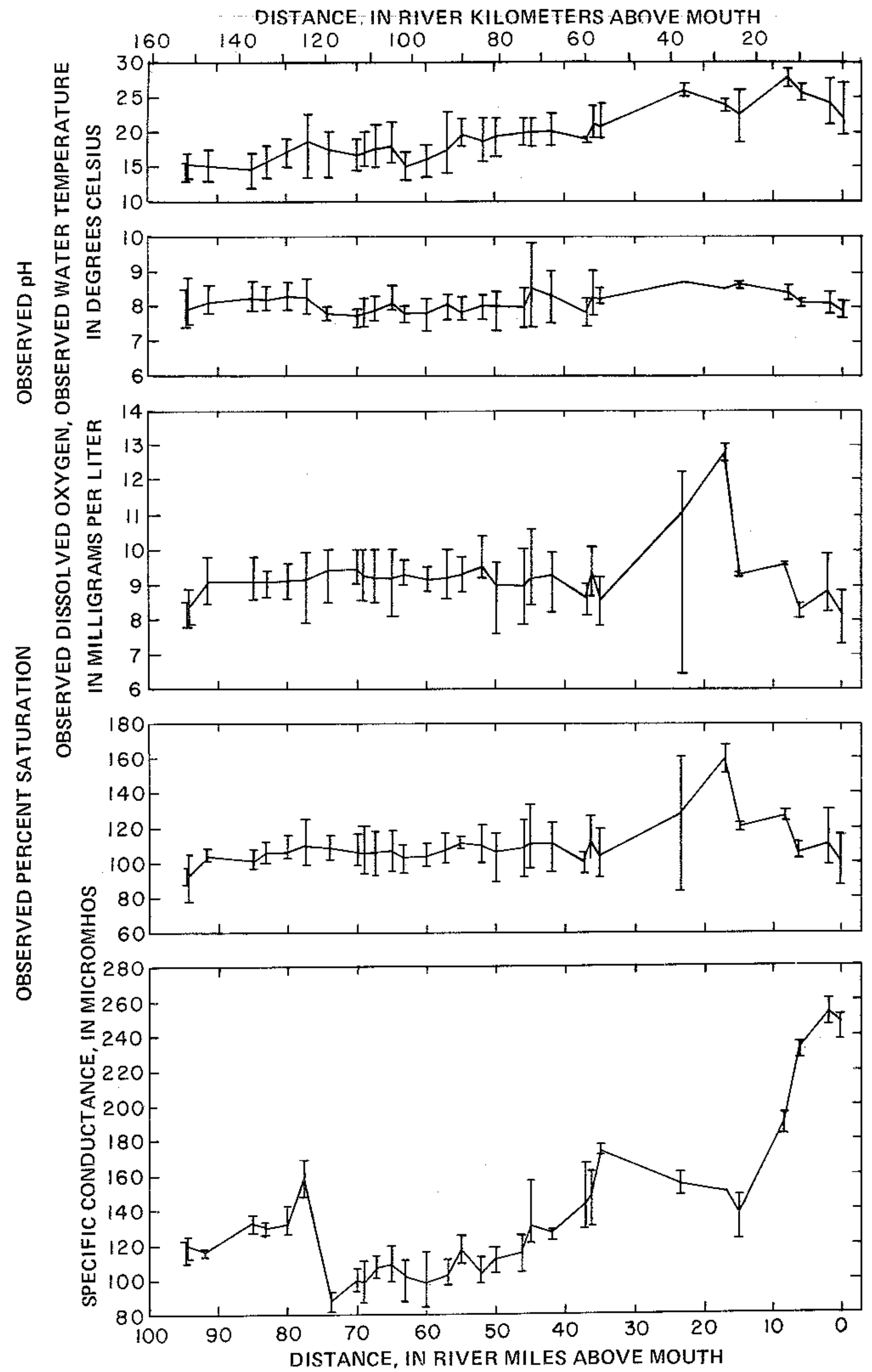


FIGURE 28. Observed dissolved-oxygen ranges in the Weiser River.

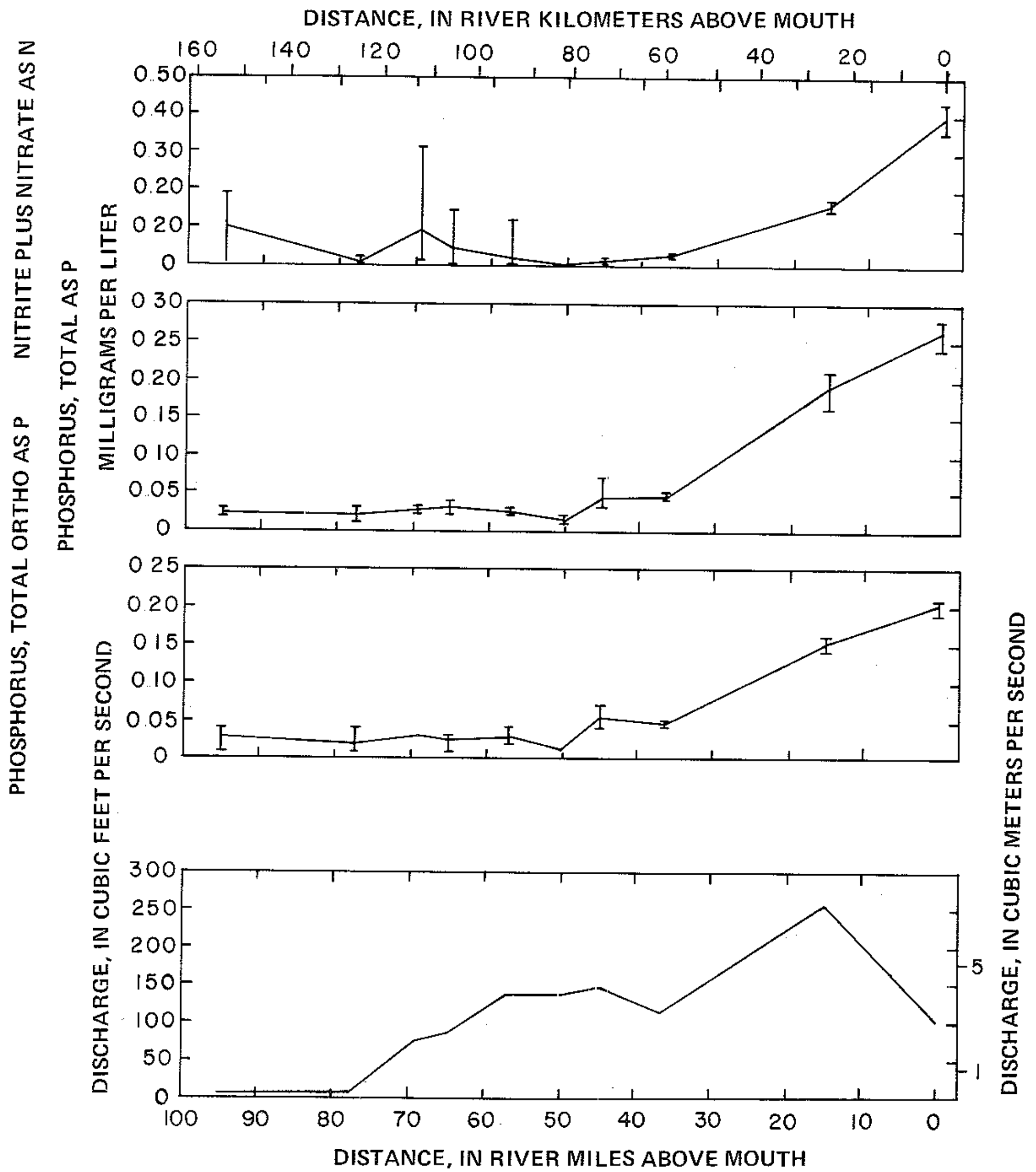


FIGURE 29. Nutrient ranges in the Weiser River.

TABLE 4
COLIFORM BACTERIA COUNTS FOR SELECTED STATIONS ON THE WEISER RIVER

Date	Time	Instantaneous discharge (ft^3/s)	Temperature (deg. C)	Immediate coliform (Col. per 100 ml)	Fecal coliform (Col. per 100 ml)
13255080 – Weiser River at Hornet Creek Road at Council, Idaho					
08-21-74	1400	73	18.5	170	91
13255630 – Weiser River near IOOF Cemetery near Council, Idaho					
08-21-74	1515	80	19.0	100	86
08-22-74	1030	78	15.5	1,100	180
13258500 – Weiser River near Cambridge, Idaho					
08-23-74	1545	136	21.0	50	38
13259520 – Weiser River below Spring Creek at Cambridge, Idaho					
08-23-74	1500	129	21.0	1,650	200
13261650 – Weiser River below Little Weiser River near Cambridge, Idaho					
08-24-74	1545	148	21.0	350	100
13261965 – Weiser River at Midvale, Idaho					
08-25-74	1500	112	23.5	2,200	40
13267400 – Weiser River below Lower Payette Canal near Weiser, Idaho					
08-27-74	1130	75	23.5	3,600	680
13268800 – Weiser River at mouth at Weiser, Idaho					
08-27-74	1530	97	27.0	1,250	940

To convert cubic feet per second to cubic meters per second multiply by 0.02832.

SUSPENDED-SEDIMENT YIELD

Sediment is solid material that originates mostly from disintegrated rocks and soil and is transported by streams in a selective process in which the finer grained and lighter weight particles are removed and carried away by runoff and streamflow. Suspended sediments, therefore, generally contain higher percentages of clay, silt, and organic matter than the soils from which they were derived.

Soil structure and drainage patterns, together with the intensity and temporal distribution of precipitation, determine the susceptibility of a soil to erosion. In areas where precipitation occurs throughout the year, protective grasses, shrubs, and trees develop. In areas of intermittent precipitation, protective plant growth is limited, thus making soils more susceptible to erosion during periods of runoff. Moreover, the removal of protective vegetation and land-surface disturbances by man's activities cause increased soil erosion during runoff periods.

Land use has a strong bearing on the potential sediment yield of an area. Land use in the Weiser River basin (fig. 30), as determined from land-classification maps by the U.S. Department of Agriculture, Soil Conservation Service, includes rangeland, woodland, irrigated crop- and pastureland, nonirrigated cropland, recreation, and urban, in descending order of use.

In the central and southern parts of the basin, rangeland is predominant, whereas in the more mountainous northern part of the basin, woodlands predominate. Irrigated crop- and pasturelands are confined to the lowlands and valleys along the Weiser River and its major tributaries. Nonirrigated croplands are mostly adjacent to the irrigated croplands and are restricted to the gentle, rolling terrain of the central and southern parts of the basin.

Sediment transport is generally related to stream discharge and the relations can be depicted by sediment-rating curves. These curves are graphs of sediment load versus stream discharge. The sediment-rating curves presented in figures 31 and 32 were constructed using data given in basic-data table J. The graph for Weiser River near Cambridge (fig. 31) also includes and is partly based on unpublished data from the U.S. Bureau of Reclamation.

Sediment-rating curves were used in conjunction with daily discharges published in U.S. Geological Survey annual surface-water data reports (1974 and 1975) to estimate sediment yields for the Weiser River gaging stations for the study period. These estimates are presented as monthly and annual totals (table 5).

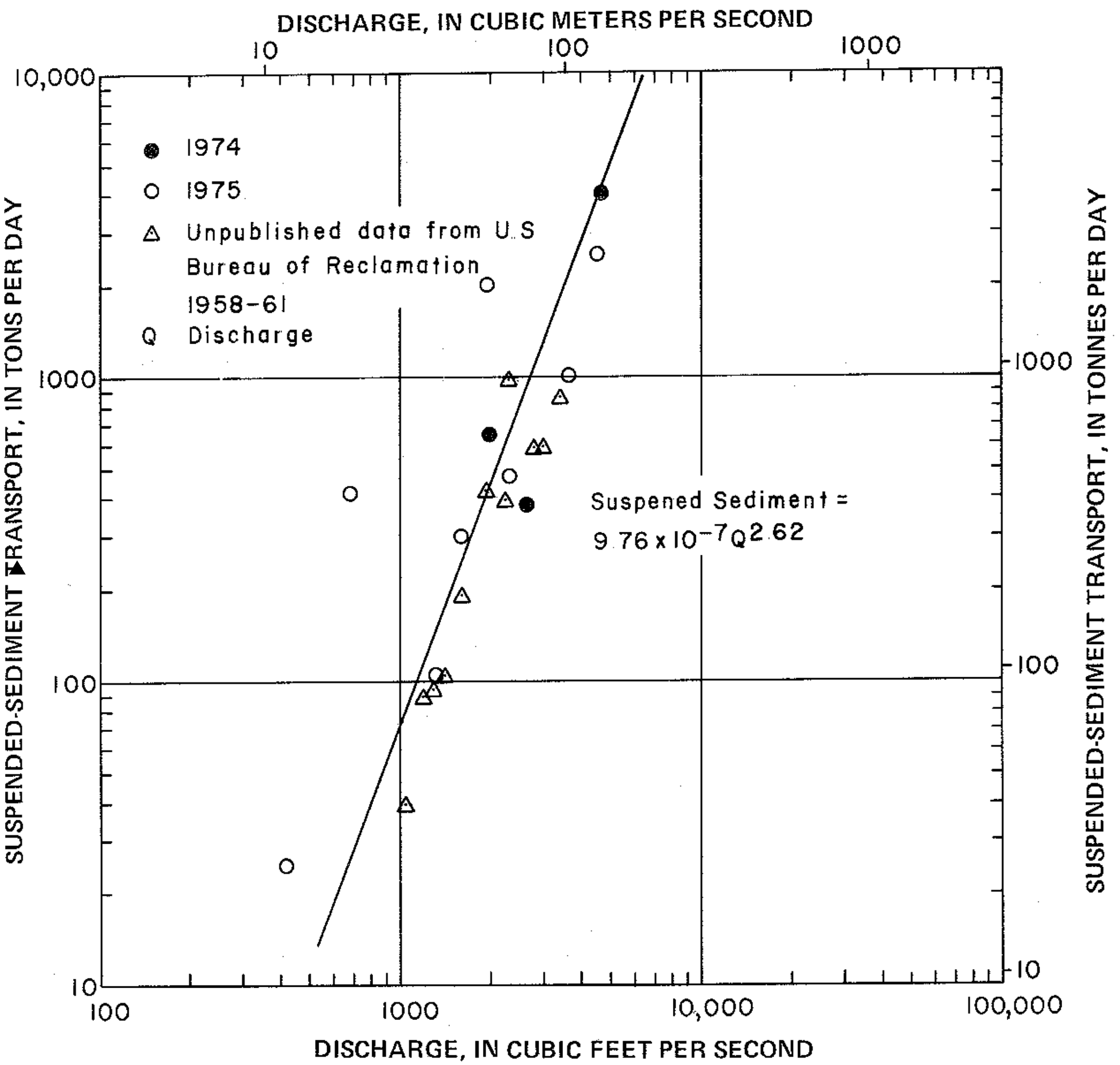


FIGURE 31. Suspended-sediment transport as a function of stream discharge, Weiser River near Cambridge.

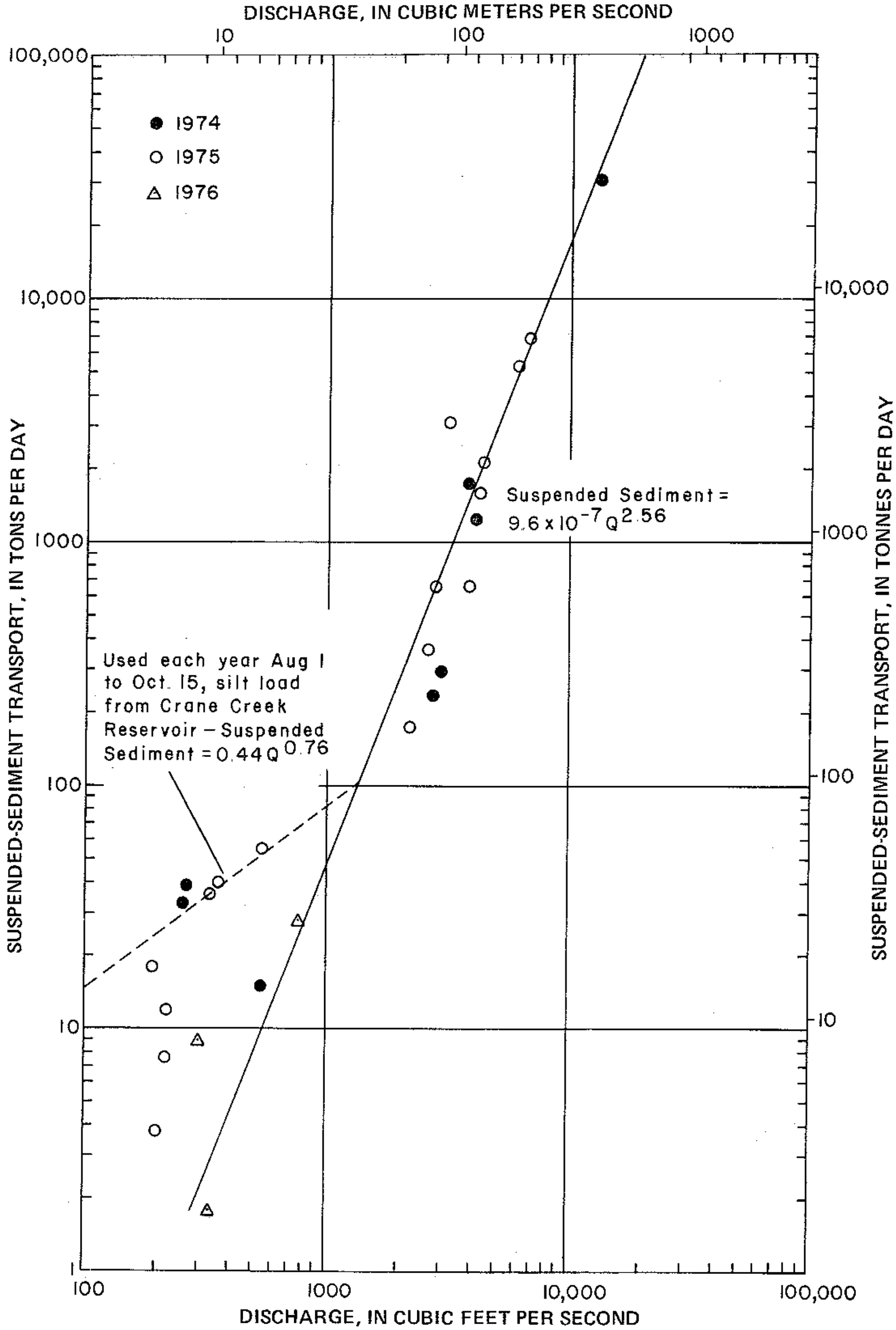


FIGURE 32. Suspended-sediment transport as a function of stream discharge, Weiser River near Weiser.

BASIC-DATA TABLE J

SUSPENDED SEDIMENT AND OTHER PHYSICAL PARAMETERS IN THE WEISER RIVER AND SELECTED TRIBUTARIES

Date	Time	Instantaneous discharge (ft^3/s)	Specific conductance (µmhos)	Temperature (deg. C)	Air temperature (deg. C)	Turbidity (JTU)	Suspended-sediment (mg/L)	Suspended-sediment discharge (t/d)
13251500 – Weiser River at Tamarack, Idaho								
01-18-74	1055	574	--	0.5	1.0	--	38	59
04-17-74	1640	352	52	6.5	14.5	5	14	13
06-06-74	0905	78	--	9.5	9.0	2	18	3.8
03-11-75	1500	19	91	1.0	3.0	18	10	.51
04-16-75	0900	61	67	1.0	.0	20	52	8.6
05-14-75	0810	508	58	4.0	4.5	8	23	32
13253000 – East Fork Weiser River near Starkey, Idaho								
04-17-74	1810	135	73	7.5	7.0	4	25	9.1
13253900 – Lost Creek above Reservoir near Tamarack, Idaho								
06-12-74	1545	142	33	10.5	21.5	2	9	3.4
13255050 – West Fork Weiser River near Fruitvale, Idaho								
04-18-74	0930	553	60	4.5	13.0	5	27	40
04-15-75	1420	195	73	8.0	16.0	5	20	11
05-14-75	1405	742	63	7.5	26.5	16	70	140
13255200 – Mill Creek near Council, Idaho								
05-15-75	1355	70	73	6.5	21.5	12	69	13
13255280 – North Hornet Creek near Council, Idaho								
04-18-74	1330	157	49	7.5	12.0	10	54	23
04-15-75	1300	102	68	5.0	10.5	10	21	5.8
13255500 – Hornet Creek near Council, Idaho								
01-18-74	1615	763	71	2.5	3.0	--	169	348
04-18-74	1615	344	67	9.5	16.5	8	39	36
06-06-74	1045	210	--	9.0	12.0	8	33	19
04-16-75	1648	348	89	10.5	12.0	17	47	44
05-14-75	1810	460	74	15.5	27.0	20	81	101

13255750 — Cottonwood Creek above diversions near Council, Idaho

04-18-74	1715	102	64	7.0	15.0	4	32	8.8
05-15-75	1234	254	54	5.5	18.5	15	110	75

13255800 — Cottonwood Creek near Council, Idaho

04-18-74	1830	99	65	9.0	16.5	4	25	6.7
06-04-74	1307	149	--	7.0	13.0	6	40	16
02-12-75	1645	13	87	.5	1.5	36	144	5.1
05-15-75	1230	167	56	6.0	23.5	21	138	62

13256800 — Middle Fork Weiser River above Fall Creek near Mesa, Idaho

04-19-74	1310	274	75	7.5	13.5	3	14	10
06-04-74	1040	821	--	5.5	7.0	14	81	180
06-05-74	1750	1,010	--	7.0	15.0	31	300	818
05-15-75	1751	689	54	5.5	21.5	42	428	796

13257600 — Johnson Creek near Goodrich, Idaho

04-19-74	1715	109	84	8.5	16.0	--	69	20
06-04-74	1620	146	--	8.0	12.5	5	19	7.5
02-12-75	1245	32	67	1.0	5.5	41	170	15
05-15-75	1020	182	50	5.0	17.0	18	69	34

13257700 — Dry Creek at Goodrich, Idaho

04-19-74	1835	10	53	13.0	12.5	--	4	.11
02-12-75	1325	33	56	2.0	3.5	50	289	26

13257800 — Goodrich Creek near Goodrich, Idaho

04-19-74	1940	75	57	6.0	9.0	--	139	28
02-12-75	1505	11	69	1.0	2.5	35	183	5.4
05-15-75	0915	111	36	4.5	15.5	15	46	14

13258500 — Weiser River near Cambridge, Idaho

01-18-74	1505	4,680	64	2.0	2.5	--	324	4,090
04-16-74	1925	1,980	73	10.0	16.5	7	121	647
06-06-74	1155	2,670	–	9.0	19.0	17	53	382
02-12-75	1740	677	89	6.5	3.5	50	229	419
02-13-75	1710	1,960	73	1.5	3.0	70	379	2,010
03-12-75	0805	1,310	69	2.0	-7.0	16	30	106
03-19-75	1915	2,320	79	--	--	25	76	476
04-17-75	0900	1,620	84	5.5	10.0	22	69	302
05-13-75	1640	3,650	73	9.5	24.0	25	103	1,020
05-15-75	2015	4,520	57	10.0	19.5	42	210	2,560
07-15-75	1315	419	100	10.5	19.0	7	22	25

13259500 — Rush Creek at Cambridge, Idaho								
04-16-74	1800	37	80	12.5	17.5	4	7	.70
06-03-74	1630	248	--	11.5	23.5	20	85	57
06-05-74	1130	369	--	7.5	16.0	42	188	187
02-13-75	1230	33	82	.5	4.0	45	125	11
03-19-75	1600	153	88	7.0	--	36	213	88
05-16-75	0905	96	49	7.0	15.0	19	88	23
06-19-75	0845	214	37	6.0	10.5	8	58	34
13259800 — Spring Creek at Cambridge, Idaho								
03-13-75	1545	52	97	6.0	10.0	30	84	12
03-19-75	1840	221	79	8.5	--	74	521	311
13260000 — Pine Creek near Cambridge, Idaho								
01-18-74	1215	176	90	3.0	1.5	--	244	116
13260090 — West Pine Creek near Cambridge, Idaho								
04-16-74	1730	48	89	11.0	15.0	4	12	1.6
03-10-75	1530	54	83	7.0	6.0	10	34	5.0
04-17-75	0808	73	88	5.5	4.5	13	35	6.9
05-13-75	1325	84	84	10.0	19.5	14	92	21
13260300 — Pine Creek at mouth at Cambridge, Idaho								
04-16-74	1600	141	89	11.5	17.5	7	24	9.1
06-03-74	1455	204	--	12.0	21.0	18	81	45
06-05-74	0930	304	--	7.5	10.5	48	292	240
02-13-75	0905	76	105	1.0	1.5	38	127	26
03-13-75	1463	111	109	6.5	9.0	14	36	11
03-19-75	1730	275	90	7.5	--	44	200	148
05-13-75	1520	220	90	12.0	22.5	20	93	55
06-19-75	1517	158	71	9.0	16.5	6	35	15
13260500 — Little Weiser River at Ruby Ranch near Indian Valley, Idaho								
04-19-74	1320	208	78	7.0	13.5	15	31	17
05-16-75	1135	727	70	5.5	15.5	27	197	387
13261600 — Little Weiser River mear mouth near Cambridge, Idaho								
01-18-74	0905	980	51	1.5	.5	--	459	1,210
04-19-74	1045	435	86	7.0	9.0	24	60	70
06-03-74	1815	503	--	15.0	23.0	27	91	124
06-05-74	1330	798	--	10.0	17.0	115	592	1,280
02-13-75	1450	1,410	62	.5	6.5	150	1,990	7,580
03-13-75	1324	360	87	4.5	10.5	28	64	62
05-16-75	1005	798	64	6.5	16.0	67	362	780

13261670 — Dixie Creek near Cambridge, Idaho								
02-13-75	1545	25	107	.0	3.0	57	131	8.8
03-12-75	1710	51	117	8.0	6.0	85	292	40
13261880 — Keithly Creek above diversions near Midvale, Idaho								
04-16-74	1455	60	73	9.0	14.5	4	6	.97
03-10-75	1412	23	89	6.5	6.5	8	10	.62
04-14-75	1457	48	84	5.0	6.0	9	28	3.6
05-13-75	0840	121	63	5.0	10.0	17	126	41
13261962 — Keithly Creek at mouth near Midvale, Idaho								
04-16-74	1320	88	102	14.0	9.5	6	12	2.8
02-13-75	1105	288	74	1.0	1.0	78	462	359
03-14-75	0855	112	85	1.0	-4.5	15	48	15
04-14-75	1600	160	97	8.0	10.0	25	116	50
05-13-75	1112	131	70	7.5	16.5	20	113	40
13263150 -- Banner Creek near Midvale, Idaho								
03-14-75	1000	7.7	260	1.10	.5	30	62	1.3
03-20-75	1030	21	202	2.5	--	90	405	23
13263500 — Weiser River above Crane Creek near Weiser, Idaho								
08-14-74	1345	123	116	22.5	--	2	10	3.3
13263700 — Crane Creek above reservoir near Crane, Idaho								
02-13-75	1320	1,750	48	1.0	4.5	125	930	4,490
13263750 — Hog Creek near Crane, Idaho								
03-12-75	1645	90	106	3.0	3.5	82	121	29
03-20-75	1130	100	97	2.0	--	88	123	33
13263800 — Mill Creek near Crane, Idaho								
01-17-74	1755	34	49	4.5	.5	--	3	.28
02-13-75	1450	252	48	3.0	6.0	59	188	128
13263930 — Tennison Creek near South Crane School, Idaho								
02-13-75	1605	118	75	3.5	7.5	87	359	114

13263950 - South Fork Crane Creek near Crane, Idaho

01-17-74	1645	140	76	5.5	4.5	--	74	28
02-13-75	1755	956	66	1.5	6.0	155	845	2,180
03-13-75	1030	25	103	3.5	1.0	15	7	.47
03-20-75	1340	63	97	7.0	--	2.8	17	2.9

13264500 — Crane Creek near Midvale, Idaho

08-14-74	1015	122	95	17.5	--	--	120	40

13265500 — Crane Creek at mouth near Weiser, Idaho

01-17-74	1410	410	104	3.5	10.0	--	166	184
08-14-74	1130	144	108	18.5	--	--	106	41
08-27-74	1540	130	115	22.0	--	--	135	47
09-16-74	1410	109	104	18.0	27.5	150	66	19
10-17-74	1115	28	138	11.0	14.0	90	47	3.6
02-14-75	1045	171	92	1.5	4.5	37	57	26
03-14-75	1243	487	76	5.5	12.5	44	23	30
03-20-75	1500	885	93	6.0	--	58	43	103
04-18-75	1113	275	92	7.5	12.0	47	7	5.2
08-14-75	1140	214	101	19.0	27.5	67	72	42
09-19-75	0911	193	106	15.0	14.0	95	47	24

13266000 — Weiser River near Weiser, Idaho

01-17-74	1515	13,100	64	2.5	9.0	--	859	30,400
04-15-74	1740	2,750	82	10.5	17.0	14	32	238
05-13-74	1615	3,000	72	9.0	14.5	--	36	292
06-06-74	1430	4,120	--	16.5	12.0	32	112	1,250
06-14-74	1230	3,850	62	14.0	28.5	43	168	1,750
07-16-74	1145	542	122	19.0	29.0	6	10	15
08-14-74	1500	267	137	--	--	--	54	39
09-16-74	1215	257	129	16.0	24.5	60	47	33
10-17-74	1215	220	134	12.0	20.0	25	20	12
11-13-74	0945	200	132	6.5	12.0	11	7	3.8
12-13-74	1200	193	162	1.0	8.0	7	35	18
01-13-75	1037	219	126	0.0	-1.0	8	13	7.7
02-14-75	1135	3,200	87	1.5	5.0	70	362	3,130
03-14-75	1205	2,640	95	5.0	10.5	33	51	364
03-19-75	1130	6,170	88	4.5	--	86	318	5,300
03-20-75	1545	4,310	98	4.0	--	55	137	1,590
04-18-75	1125	2,870	87	8.5	12.5	25	85	659
05-12-75	1330	4,420	80	10.5	22.5	38	179	2,140
05-16-75	1430	6,810	63	10.0	23.0	66	375	6,900
06-19-75	1045	2,230	43	10.5	19.0	6	29	175
07-17-77	0825	549	130	12.0	11.5	18	37	55
08-14-75	1200	360	129	20.0	29.0	53	41	40
09-19-75	1130	332	129	14.0	19.0	65	40	36
10-17-75	0920	301	144	10.0	10.0	10	11	8.9
11-13-75	1260	328	138	4.0	9.0	2	2	1.8
12-13-75	1620	785	107	1.0	-1.0	7	13	28

13266550 — Cove Creek near Weiser, Idaho

01-17-74	1200	31	183	5.0	10.0	--	185	15
02-14-75	1300	25	178	4.0	4.5	69	114	7.7
02-14-75	1315	27	173	4.0	5.5	60	97	7.1

13266850 — Mann Creek above reservoir near Weiser, Idaho

04-16-74	0950	178	129	5.0	12.5	7	32	15
03-10-75	1215	77	103	4.0	4.0	16	17	3.5
04-14-75	1310	229	95	4.0	5.5	44	172	106
05-12-75	1715	314	118	10.5	18.5	38	287	243

13268500 — Monroe Creek above Sheep Creek near Weiser, Idaho

01-17-74	1510	122	118	4.0	9.0	--	1,360	448
04-16-74	0900	30	165	7.0	8.5	7	21	1.7
02-14-75	0920	23	156	1.0	-2.0	36	73	4.5
03-14-75	1052	41	130	2.0	3.5	20	46	5.2
03-19-75	1245	157	112	5.0	9.0	170	1,340	568
04-14-75	1220	122	97	5.5	8.0	92	824	271
05-12-75	1428	43	128	15.5	23.5	17	61	7.1

13268800 — Weiser River at mouth at Weiser, Idaho

08-14-74	1605	71	197	27.0	--	--	61	12

13269100 — Jenkins Creek near Weiser, Idaho

01-17-74	1140	35	--	1.5	--	--	1,330	126

13269210 — Scott Creek above diversions, near Weiser, Idaho

02-14-75	1125	2.8	186	.0	.5	18	1	.01
03-10-75	1055	32	81	3.0	4.5	32	88	7.6
04-14-75	1102	81	77	5.0	6.0	84	633	138

13269228 — Hog Creek near Weiser, Idaho

01-17-74	1315	35	214	-.5	11.0	--	433	41
02-14-75	1030	14	197	.0	-2.0	32	31	1.2
03-10-75	0950	34	137	2.5	3.0	39	48	4.4

To convert cubic feet per second to cubic meters per second multiply by 0.02832.
To convert tons to metric tonnes multiply by 0.9072.

TABLE 5

SUSPENDED-SEDIMENT TRANSPORT IN TONS FOR SELECTED WEISER RIVER STATIONS

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual total	Tons per square mile
							13251500 – Weiser River at Tamarack							
1974							715	377	45	11	5.1	3.4	(1,160)	
1975	2.9	3.3	3.4	3.6	3.1	11	132	659	68	8.2	5.1	4.1	904	25
							13258500 – Weiser River near Cambridge							
1974	2.8	5,660	3,440	41,700	960	31,000	31,200	25,300	14,900	376	14	5.9	155,000	256
1975	5.8	8.1	6.9	14	543	4,460	6,530	34,900	11,200	414	24	5.4	58,100	96
							13266000 – Weiser River near Weiser							
1974	262	8,500	12,600	113,000	5,330	55,000	49,500	30,000	28,000	506	1,010	855	305,000	209
1975	398	23	20	32	3,590	31,800	14,600	46,800	20,400	946	1,180	919	121,000	83

To convert tons to metric tonnes multiply by 0.9078.
To convert tons per square mile to tonnes per square kilometer multiply by 0.3503.

Average annual sediment yields can also be estimated using the sediment-rating curves of figures 31 and 32 in conjunction with streamflow-duration data. Flow-duration curves of daily flows at selected Weiser River stations are shown in figure 15. Estimated mean annual suspended-sediment transport is about 43,000 tons (39,000 t) at Weiser River near Cambridge and about 97,000 tons (88,000 t) at Weiser River near Weiser (table 6).

Another technique can be used to estimate annual sediment transport past a site having only short or intermittent flow records. This method uses an estimated duration curve developed by a correlation technique. This curve then can be used to estimate average annual sediment yields from sediment-rating curves, as above.

Mean annual suspended-sediment transport at Weiser River near Cambridge using the duration curve for the period of record is about 43,000 tons/yr (39,000 t/yr) (table 6). Mean annual suspended-sediment transport using estimated duration curve is about 56,000 tons/yr (47,000 t/yr), or about 16 percent difference. Mean annual suspended-sediment transport at Weiser River near Weiser using the duration curve for the period of record is about 97,000 tons/yr (88,000 t/yr) (table 6). Mean annual suspended-sediment transport using the estimated duration curve is about 128,000 tons/yr (116,000 t/yr), or about 24 percent difference. Thus, the estimated duration curve technique gives reasonable mean annual sediment yield values within the Weiser River basin. Table 7 is a tabulation of estimated annual sediment yields within the basin.

The mean annual suspended-sediment transports given in table 7 are average rates of yield over the entire area contributing runoff to a gaging site. Obviously, not all parts of a drainage basin yield sediment runoff at the same rate. However, these rates, when modified

TABLE 6

MEAN ANNUAL SUSPENDED-SEDIMENT TRANSPORT USING 45 DAY OF FLOW DURATION AND SEDIMENT RATING FOR WEISER RIVER NEAR CAMBRIDGE AND NEAR WEISER

Days of high flow	Percentage of yearly time	Average percent	Qw from duration curve (ft^3/s)	Qs (t/d) from Fig. 31 and Fig. 32	Qs days (t)
		Weiser River near Cambridge		(Fig. 31)	
1	0 - .27	.135	5,500	6,150	6,150
2	.27 - .82	.54	4,400	3,430	6,860
4	.82 - 1.92	1.37	3,600	2,030	8,110
8	1.92 - 4.11	3.02	2,850	1,100	8,800
15	4.11 - 8.22	6.16	2,200	558	8,370
15	8.22 - 12.33	10.28	1,770	316	4,740
45 days	12.33%				
Tons per year					43,040
		Weiser River near Weiser		(Fig. 32)	
1	0 - .27	.135	10,800	20,320	20,320
2	.27 - .82	.54	7,600	8,260	16,520
4	.82 - 1.92	1.37	5,850	4,230	16,920
8	1.92 - 4.11	3.02	4,500	2,160	17,280
15	4.11 - 8.22	6.16	3,480	1,120	16,800
15	8.22 - 12.33	10.28	2,770	620	9,300
45 days	12.33%				
Tons per year					97,140

To convert cubic feet per second to cubic meters per second multiply by 0.02832.
To convert tons to metric tonnes multiply by 0.9072.

TABLE 7
ESTIMATED ANNUAL SUSPENDED-SEDIMENT YIELDS FOR SELECTED STATIONS IN THE WEISER RIVER BASIN

Station number and name		Drainage area (mi^2)	Suspended-sediment load (t/yr)	($[t/yr]/mi^2$)
13251500	Weiser River at Tamarack	36.5	699	19
13255050	West Fork Weiser River near Fruitvale	87.7	682	8
13255500	Hornet Creek near Council	108	5,370	50
13255800	Cottonwood Creek near Council	20.7	333	16
13256800	Middle Fork Weiser River above Fall Creek near Mesa	64.5	6,780	100
13257600	Johnson Creek near Goodrich	21.0	1,220	58
13257800	Goodrich Creek near Goodrich	15.3	2,440	160
13258500	Weiser River near Cambridge	605	51,600	85
13259500	Rush Creek at Cambridge	30.4	2,560	84
13260090	West Pine Creek near Cambridge	23.9	1,180	49
13261600	Little Weiser River near mouth near Cambridge	204	35,600	170
13261880	Keithly Creek above diversions near Midvale	13.7	358	26
13261962	Keithly Creek at mouth near Midvale	52.7	7,750	150
13263950	South Fork Crane Creek near Crane	48.2	425	9
13266000	Weiser River near Weiser	1,460	122,000	84
13266850	Mann Creek above reservoir near Weiser	53.5	2,900	54
13268500	Monroe Creek above Sheep Creek near Weiser	30.5	16,800	550
13269210	Scott Creek above diversions near Weiser	21.7	291	13

To convert square miles to square kilometers - multiply by 2.59.
To convert tons to metric tonnes - multiply by 0.9072.
To convert tons per square mile to tonnes per square kilometer - multiply by 0.3503.

by varying land-use patterns, differing degrees of surface slope, variable amounts of precipitation, variations in altitudes of land surface, and personal field observations of sediment-yield characteristics, are helpful in defining suspended-sediment-yield rates from a specific basin. Figure 33 illustrates the distribution of sediment yields for an average year as determined and modified by these criteria. Suspended-sediment yields in the Weiser River basin for an average runoff year range from less than 5 tons/mi^2 (2 t/km^2) in the more heavily vegetated woodland areas to over 500 tons/mi^2 (200 t/km^2) from unirrigated farmlands where plowed hillsides are allowed to stand fallow, at least during winter months.

Crane Creek Reservoir is located in the southeastern part of the Weiser River basin, has a capacity of 51,700 acre-ft ($6.3 \times 10\ m^3$), and is filled by runoff from 242 mi^2 (626 km^2) of generally unirrigated farmlands and sparsely vegetated grazing lands. Suspended-sediment yield from these lands is estimated in the range of 20 to 60 tons/mi^2 (70 to 150 t/km^2) for an average runoff year (fig. 33). Observations of turbid water leaving the reservoir during the irrigation season of 1974 raised the question of how much sediment was being transported to the Weiser River by releases from the reservoir. Sediment samples were obtained August 14, 1974, at the stations Crane Creek near Midvale just below the reservoir, Crane Creek at mouth, Weiser River above Crane Creek, and Weiser River at mouth. These samples were analyzed for particle-size distribution, as well as sediment concentration. The particle-size (fig. 34) analysis showed that 95 percent of the sediment leaving the reservoir was composed of silt- and clay-sized materials. The amount of sediment entering the Weiser River from Crane Creek Reservoir increased the sediment concentration in the Weiser River just below their confluence from 10 to 54 mg/L. From August 1 to October 15 each year, an increase in the sediment load of the Weiser River near Weiser is evident as the releases from Crane Creek Reservoir are increased. Figure 32 shows a change in the sediment-rating curve for this period to be used for computing sediment load in the Weiser River introduced from Crane Creek Reservoir.

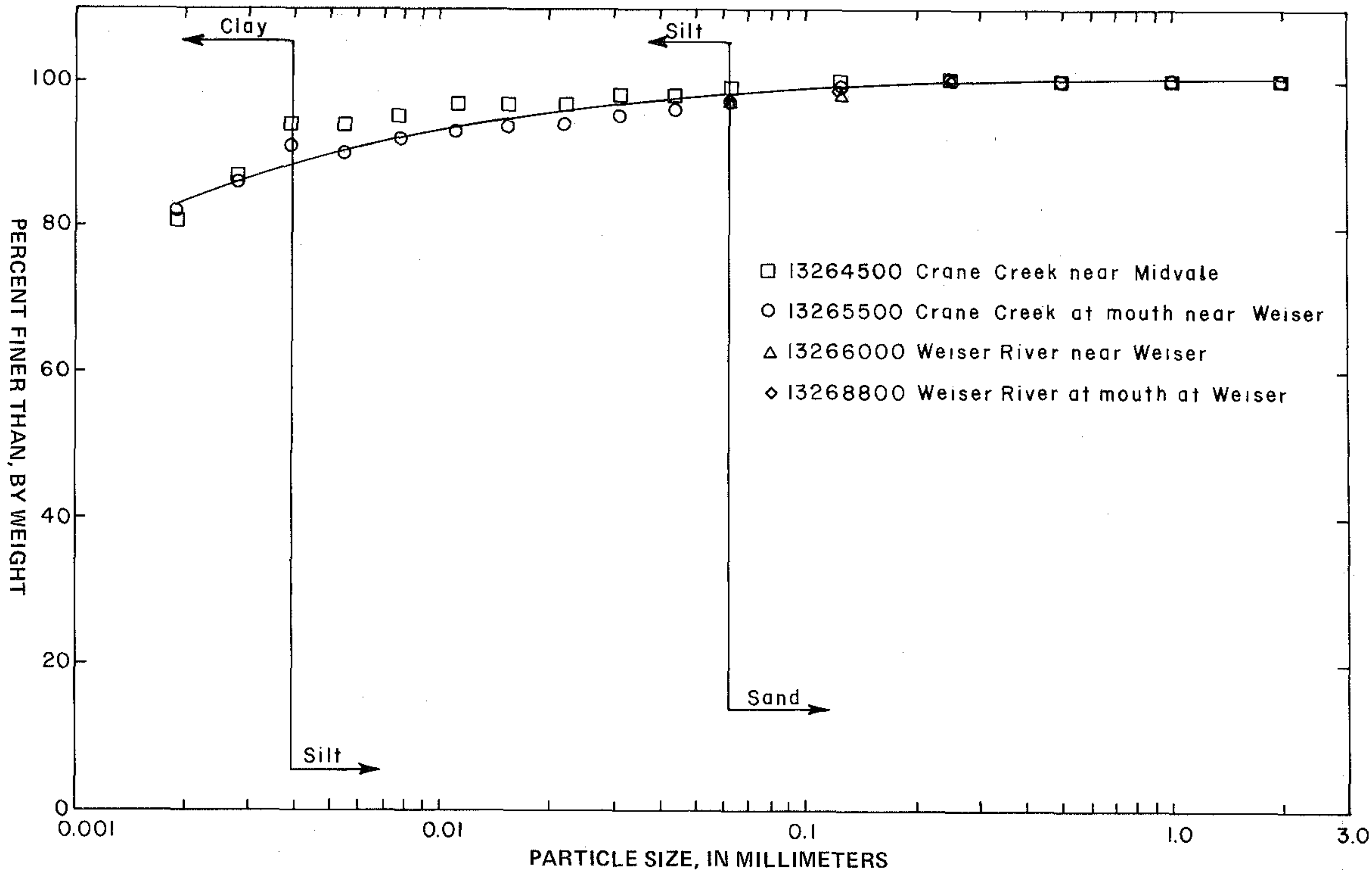


FIGURE 34. Particle-size distribution of suspended sediment for selected sites on the Weiser River and Crane Creek.

SUMMARY

The largest source of readily available water in the Weiser River basin is surface water, and the principal use of water in the basin is for irrigation. The surface- and ground-water resources in the basin are not closely related, except in areas of surface-water use near Weiser. Therefore, the optimum development and use of the surface water would not greatly affect the ground-water resources, except near Weiser.

The principal aquifers in the Weiser River basin are in the Columbia River Basalt Group and in the overlying Tertiary and Quaternary sedimentary rocks. Ground water occurs under both artesian and water-table conditions in the basalt and is typically confined or semi-confined in the sedimentary rocks, except near Weiser, where water-table conditions are found. The principal source of recharge to the basalt aquifer is precipitation falling on basalt outcrops in the mountains. Recharge to sedimentary rock aquifers is from infiltration of water from snowmelt runoff, streams, and near Weiser, from infiltration of water from canals and irrigated fields. Yields from both basalt- and sedimentary-rock aquifers are highly variable. Ground-water discharge to streams in the mountains is usually sufficient to maintain year-round streamflow.

Mean annual flow past the Weiser River near Weiser gaging is 1,090 ft^3/s (30.8 m^3/s), or 788,000 acre-ft/yr ($0.97 \times 10^9 m^3/yr$). Tributary runoff is strongly related to altitude, with maximum flows in the lower altitude tributaries occurring in January, and in the higher altitude tributaries in April and May. Weiser River flows are directly affected by irrigation diversions, especially in the mid- and late summer months.

Ground waters of the basin are generally of "good" quality; that is, they are suitable for present uses. Ground water in the part of the basin above Cambridge contains dissolved-solids concentrations of less than 200 mg/L. The valley-fill areas near Cambridge and Midvale have a similar type of ground water, with dissolved-solids concentrations of about 150 mg/L.

The possible contamination of rural wells by barnyard or septic-tank pollutants is suspected in a few places in the basin. Improper well construction probably permits these contaminants to enter wells.

During low-flow periods, usually late summer, the water quality in the Weiser River deteriorates. Where waters have high temperatures, near 25° C, algal growths are abundant in some reaches between Cambridge and Weiser. Introduction of fecal material at Council, Cambridge, and Weiser during these critical low-flow periods causes high concentrations of pollution-indicating bacteria, which suggest a possible health hazard.

Suspended-sediment yields in the Weiser River basin range from 5 $tons/mi^2$ (2 t/km^2) to over 500 $tons/mi^2$ (200 t/km^2) per year.

RECOMMENDATIONS FOR MONITORING NETWORK

To provide data for management of the water resources of the Weiser River basin, the following network for the monitoring of ground-water-level fluctuations, surface-water flow, and water-quality changes is suggested. (1) Ground-water observation wells: Initiate bimonthly water-level measurements in the following wells completed in the basalt aquifers near or in Fruitvale, Council, Mesa, Cambridge, and Crane Creek Reservoir—17N-1W-15AAC1, 16N-1W-22BBA1, 15N-1W-22BAD1, 14N-2W-6DCD1, and 13N-1W-32ADC1; initiate bimonthly water-level measurements in the following wells completed in the sedimentary-rock aquifers near Cambridge, Mann Creek, and Weiser—14N-2W-10BCA1, 12N-4W-31DBB1, and 11N-6W-25CAC1; and continue bimonthly water-level measurements in the following Idaho State observation well completed in the basalt aquifer near Indian Valley—14N-1W-11CCC1, and the Idaho State observation wells completed in the sedimentary-rock aquifers near Council and Midvale—16N-1W-3DDD2 and 13N-4W-12CDC1. (2) Stream-gaging stations: Continue operation of the gaging stations Weiser River near Weiser and Weiser River near Cambridge to provide streamflow data for the Weiser River; install a gaging station on Crane Creek above the reservoir to provide streamflow data descriptive of hydrologic conditions in the upper Crane Creek area. (3) Water-quality sampling sites: Randomly sample individual domestic water-supply systems from wells completed in the sedimentary-rock aquifers near Weiser and Midvale to detect possible water-quality and bacterial changes resulting from localized contaminants; sample the Weiser River at Weiser monthly for chemical and bacterial concentrations to determine the quality of the surface water leaving the basin; sample the Weiser River below Council, Cambridge, and Midvale monthly from July to August for bacteria and nutrients to assess the contaminants entering the river; sample at the station Weiser River near Weiser monthly for suspended-sediment concentrations to determine annual suspended-sediment yield of the basin and of Crane Creek Reservoir, and sample Crane Creek and South Fork Crane Creek for suspended-sediment concentrations during high-flow periods above the reservoir to determine the amount of sediment entering Crane Creek Reservoir.

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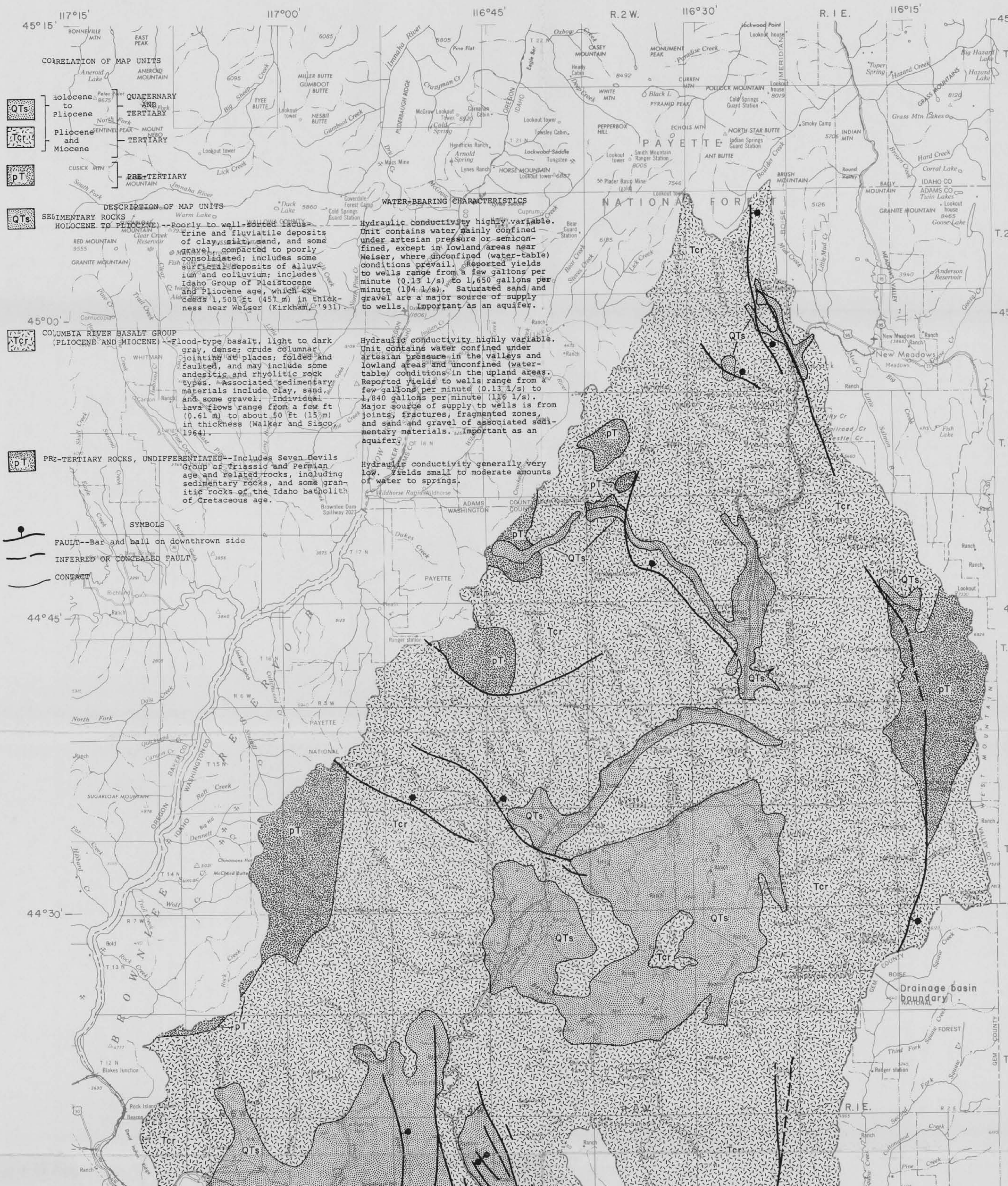

FIGURE 4.--GENERALIZED GEOLOGY OF THE WEISER RIVER BASIN

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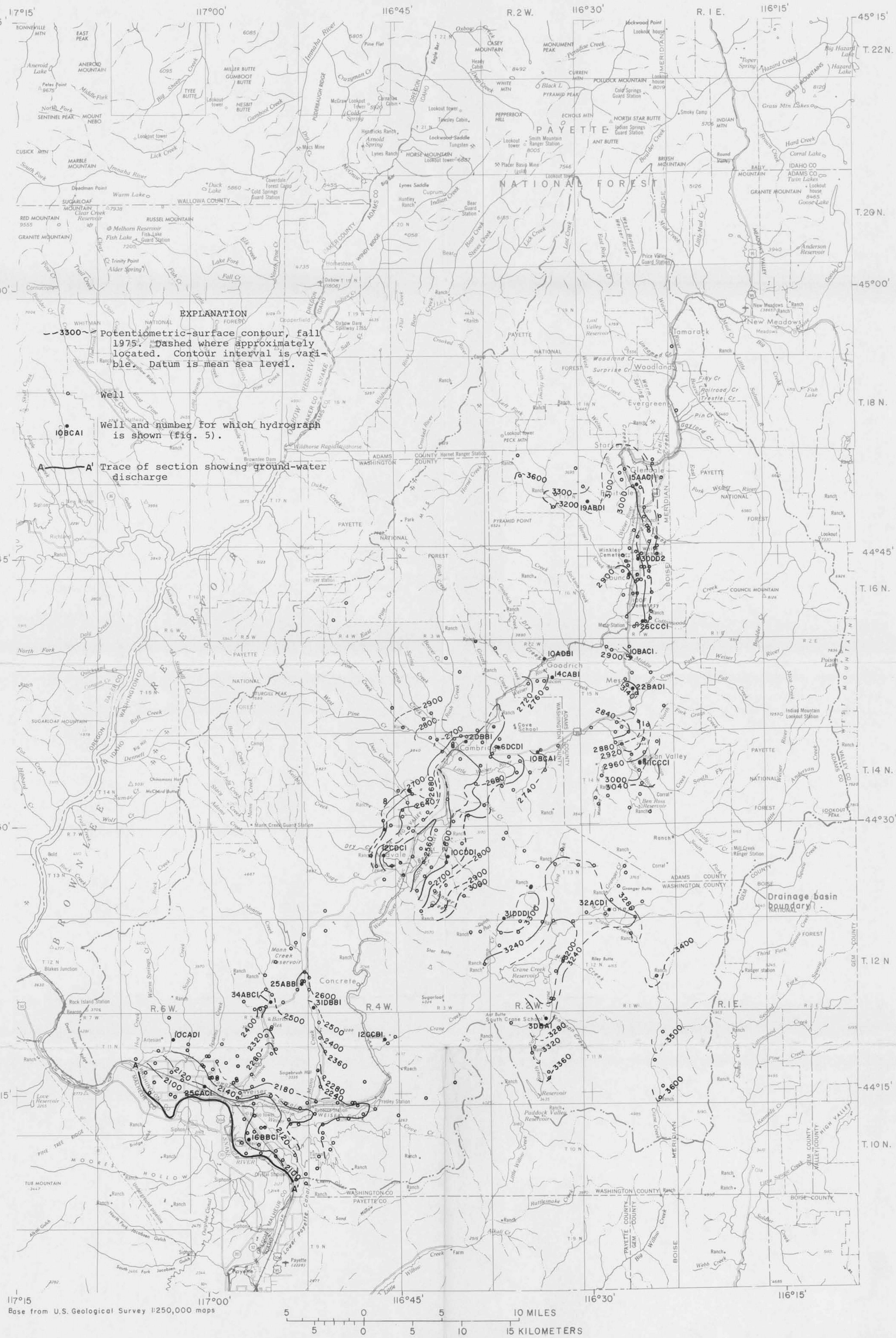

FIGURE 6.--CONTOURS ON THE POTENTIOMETRIC SURFACE, FALL 1975, AND WELL LOCATIONS IN THE WEISER RIVER BASIN

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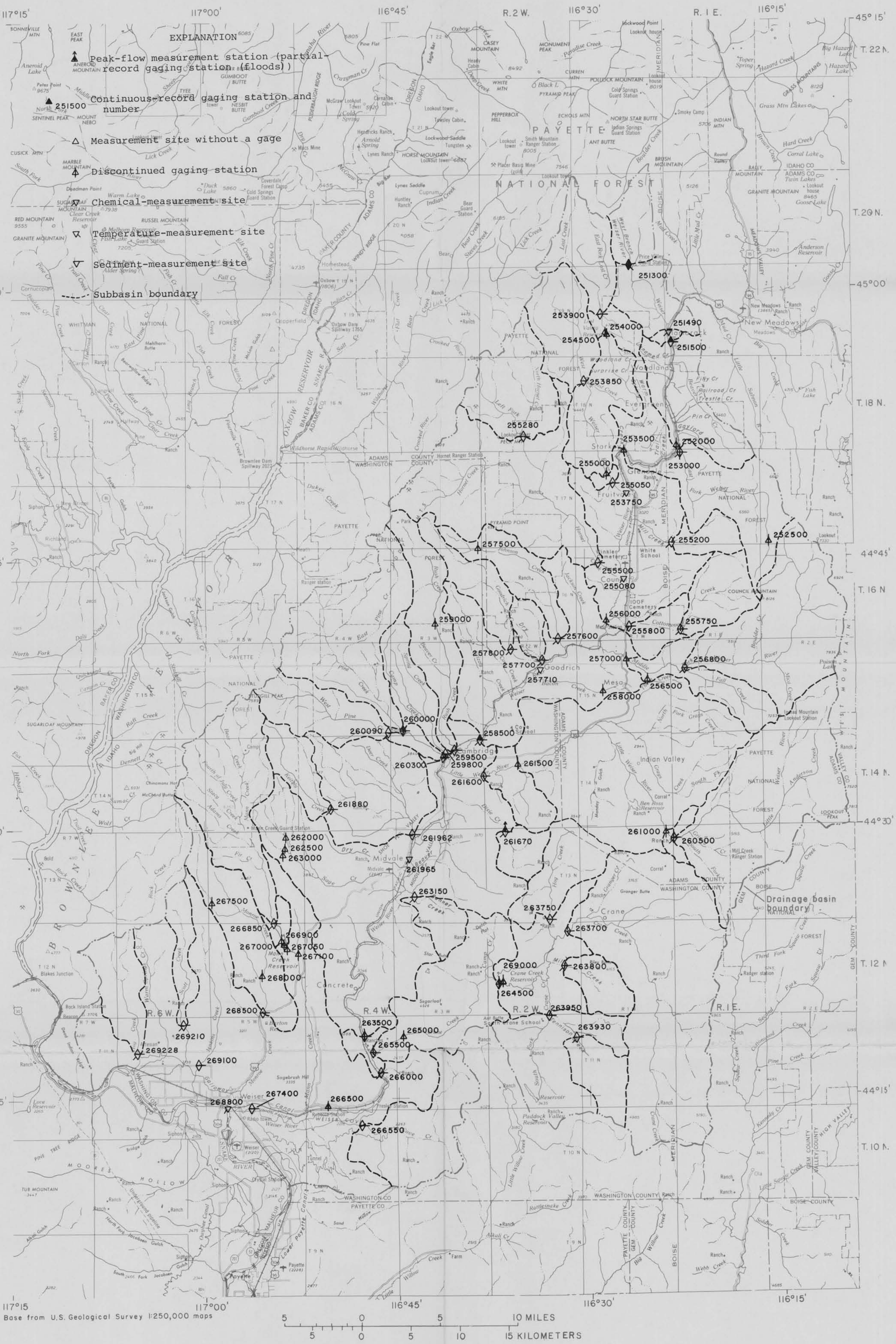

FIGURE 8.--SITES FOR MEASURING STREAMFLOW AND DETERMINING WATER QUALITY IN THE WEISER RIVER BASIN

FIGURE 12.--MEAN ANNUAL RUNOFF AND MEAN MONTHLY RUNOFF FOR SELECTED SUBBASINS, AND MEAN ANNUAL PRECIPITATION FOR THE WEISER RIVER BASIN

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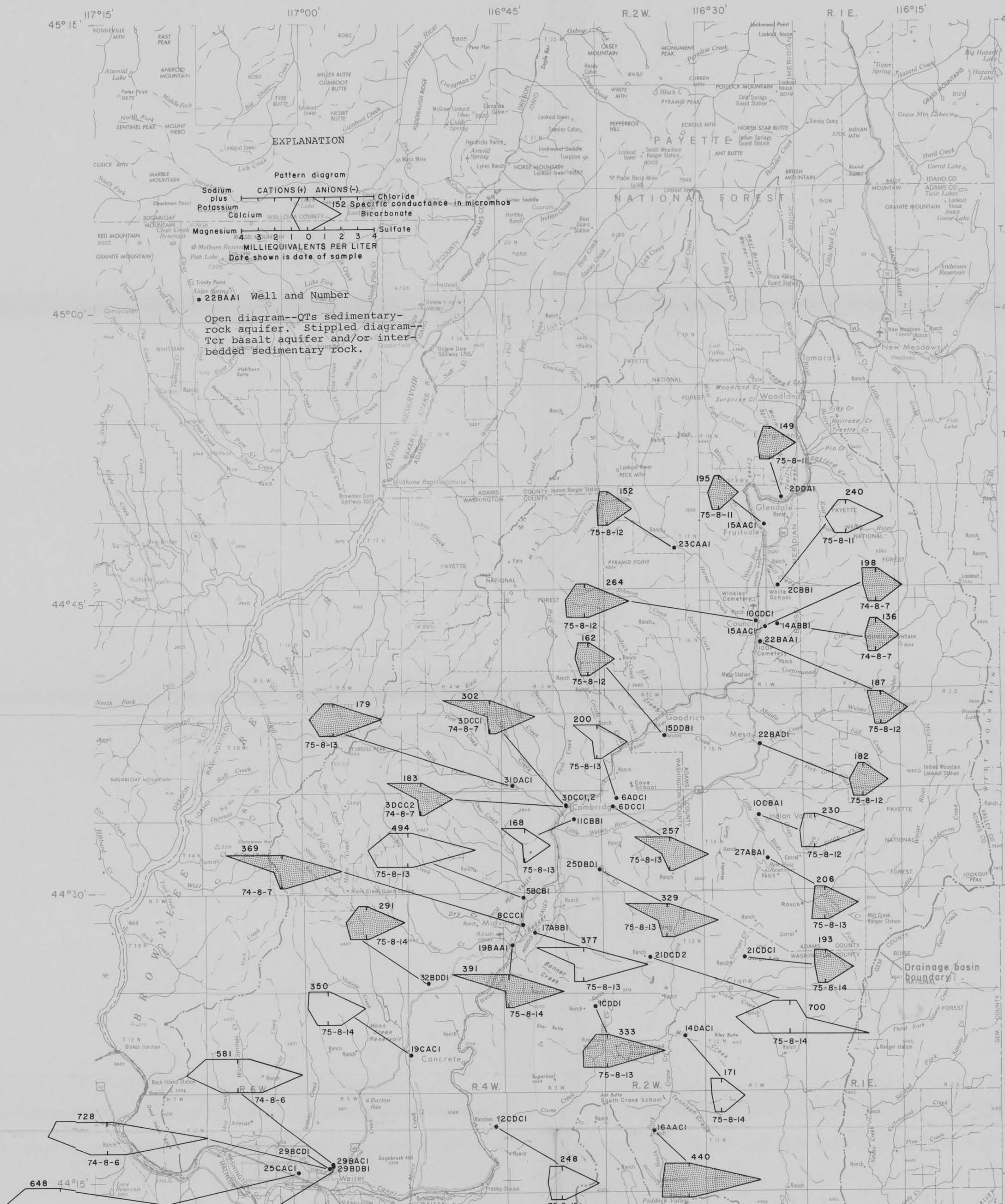

FIGURE 24.--CHEMICAL CHARACTER OF GROUND WATER AND LOCATIONS OF SAMPLING SITES IN THE WEISER RIVER BASIN

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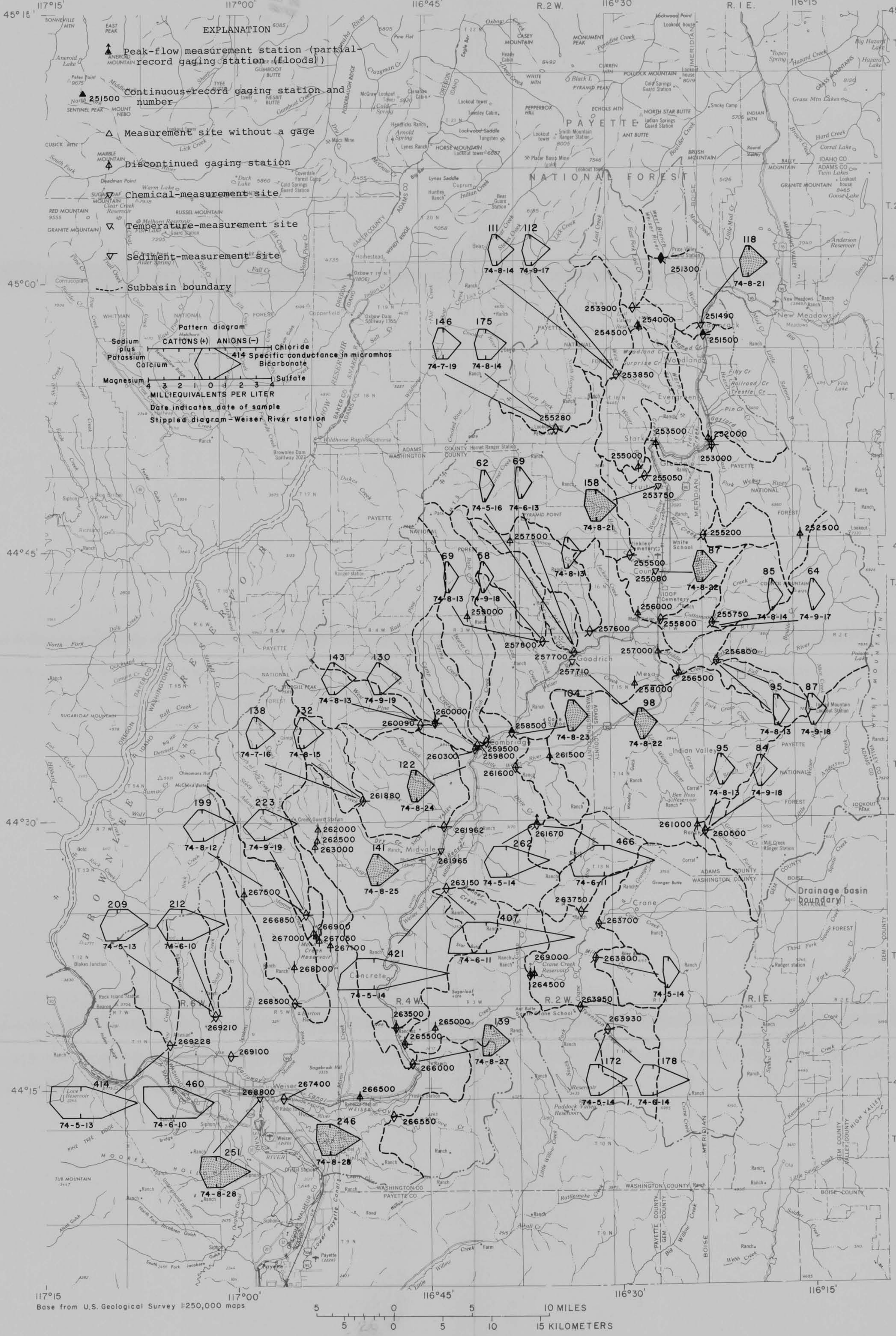

FIGURE 26.--CHEMICAL CHARACTER OF SURFACE WATER DURING LOW FLOW CONDITIONS FOR THE WEISER RIVER AND SELECTED TRIBUTARIES

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EXPLANATION

Station	Date	River discharge (ft³/s)	Inflow (ft³/s)	Outflow (ft³/s)	Specific conductance (μmhos)	Apparent gain or loss to ground water	Map number
Weiser R. at Tamarack	8-20-74	7.9			120		1
Unnamed Cr.	8-20-74		0.31		93		2
Beaver Cr.	8-20-74		2.6		66		3
Woodland Cr.	8-20-74		.16		97		4
Surprise Cr.	8-20-74		.19		113		5
Filly Cr.	8-20-74		.21		132		6
Railroad Cr.	8-20-74		.10		150		7
Trestle Cr.	8-20-74		.37		143		8
Pin Cr.	8-20-74		.25		160		9
Gaylord Crk.	8-20-74		1.9		101		10
Weiser R. ab. E. F. Weiser R.	8-20-74	19.			117	+5.0	11
E. F. Weiser R.	8-20-74		3.0		116		12
Trail Cr.	8-20-74		.05		105		13
Irrigation diversion	8-20-74			1.8	-		14
Irrigation return	8-20-74		1.2		-		15
Warm Spring Cr. (Includes inflow from Starkey Hot Springs)	8-20-74		2.2		420		16
Irrigation diversion	8-20-74			11	151		17
Irrigation diversion	8-20-74			10	136		18
Weiser R. at Fruitvale	8-20-74	8.4			144	+5.7	19
Weiser R. at Fruitvale	8-21-74	7.2			156		19
Weiser R. ab. W. F. Weiser R.	8-21-74	7.3			161	+0.10	20
W. F. Weiser R.	8-21-74		58		70		21
Irrigation return	8-21-74		1.8		141		22
Irrigation diversion	8-21-74			3.0	-		23
Mill Cr.	8-21-74		4.2		109		24
Irrigation return	8-21-74		3.1		-		25
Irrigation diversion	8-21-74			1.0	-		26
Weiser R. at Hornet Cr. Road	8-21-74	73			61	+3.0	27
Weiser R. at Hornet Cr. Road	8-22-74	78			66		27
Hornet Cr.	8-22-74		8.6		129		28
Irrigation return	8-22-74		.30		-		29
Cottonwood Cr.	8-22-74		1.9		117		30
Weiser R. below Cottonwood Cr.	8-22-74	85			84	-4.0	31
M. F. Weiser R.	8-22-74		42		65		32
Johnson Cr.	8-22-74		9.0		58		33
Irrigation diversion	8-22-74			5.6	-		34
Weiser R. at Goodrich	8-22-74	138			98	+8.0	35
Weiser R. at Goodrich	8-23-74	135			92		35
Goodrich Cr.	8-23-74		6.6		71		36
Spring and Irrigation return	8-23-74		1.3		-		37
Irrigation diversion	8-23-74			10	-		38
Weiser R. near Cambridge	8-23-74	136			104	+3.0	39
Weiser R. near Cambridge	8-24-74	129			115		39
Irrigation return	8-24-74		1.1		-		40
Irrigation diversion	8-24-74			1.0	-		41
Spring Cr.	8-24-74		2.7		198		42
Pine Cr.	8-24-74		5.7		173		43
Little Weiser R.	8-24-74		19		167		44
Weiser R. below Little Weiser R.	8-24-74	148			121	-8.0	45
Irrigation diversion	8-25-74			75	110		46
Weiser R. below Dixie Cr.	8-24-74	72			140	-1.0	47
Weiser R. below Dixie Cr.	8-25-74	83			109		47
Irrigation return	8-25-74		33		-		48
Irrigation diversion	8-25-74			2.4	-		49
Beaver Cr.	8-25-74		8.8		168		50
Weiser R. below Dry Cr.	8-25-74	121			178	-1.0	51
Weiser R. below Dry Cr.	8-26-74	128			175		51
Spring and irrigation return	8-26-74		5.1		-		52
Crane Cr.	8-27-74		130		115		53
Weiser R. near Weiser	8-27-74	254			122	-9.1	54
Weiser R. near Weiser	8-28-74	254			121		54
Irrigation diversions	8-28-74			228	-		55
Weiser R. below Galloway Canal	8-28-74	26			-		56
Irrigation return	8-28-74		12		-		57
Mann Cr.	8-28-74		8.4		467		58
Irrigation diversion	8-28-74			42	-		59
Irrigation return	8-28-74		43		-		60
Weiser R. at Hwy 95	8-28-74	73			246	+26	61
Monroe Cr.	8-28-74		22		213		62
Irrigation return	8-28-74		2.0				63
Weiser R. at mouth	8-28-74	97			251		64

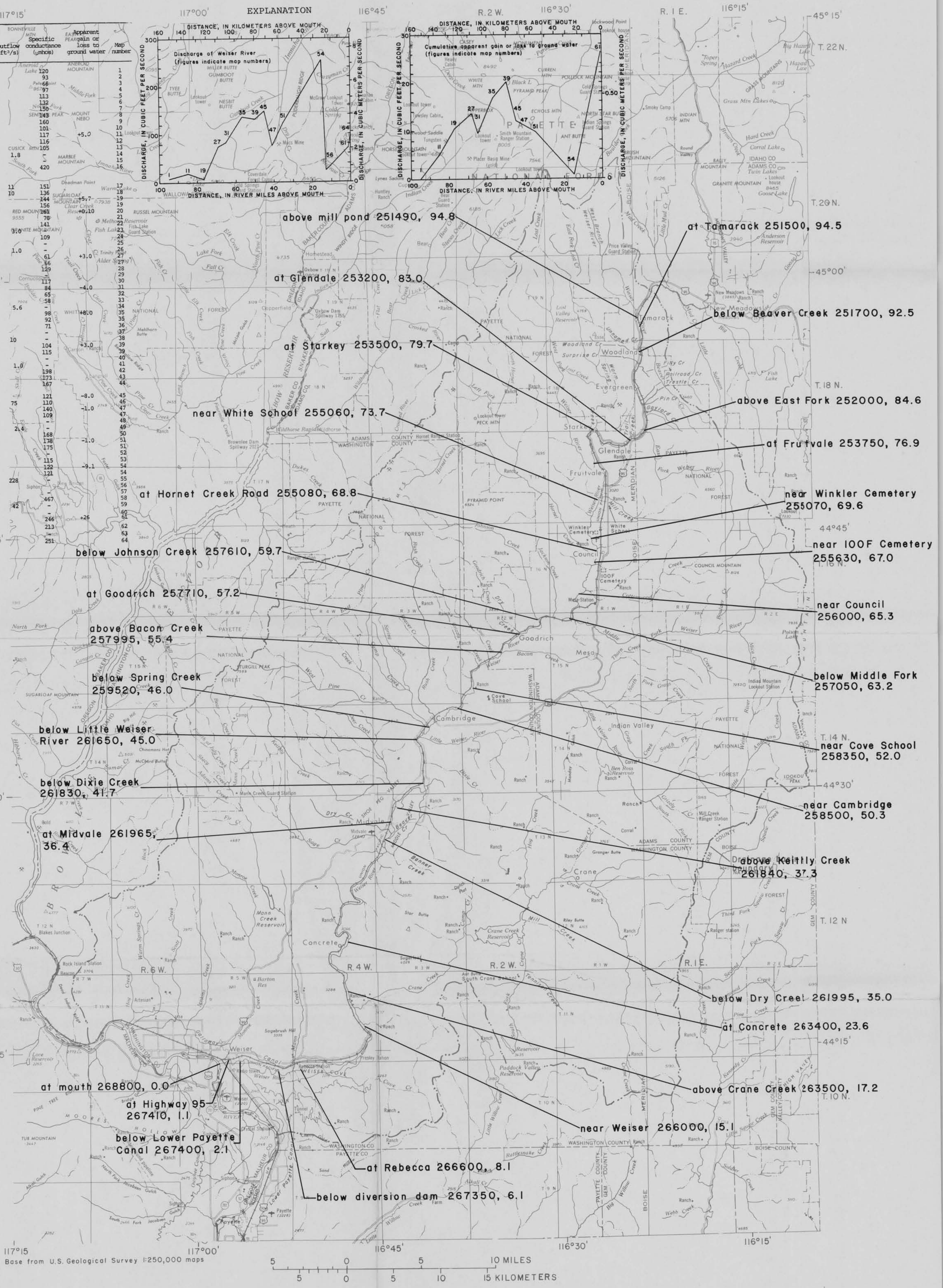

FIGURE 27.--DISCHARGES AND LOCATION OF INFLOW AND OUTFLOW MEASURING SITES AND WATER QUALITY SAMPLING SITES, LOW-FLOW PERIOD, WEISER RIVER BASIN

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PREPARED IN COOPERATION WITH THE
IDAHO DEPARTMENT OF WATER RESOURCES

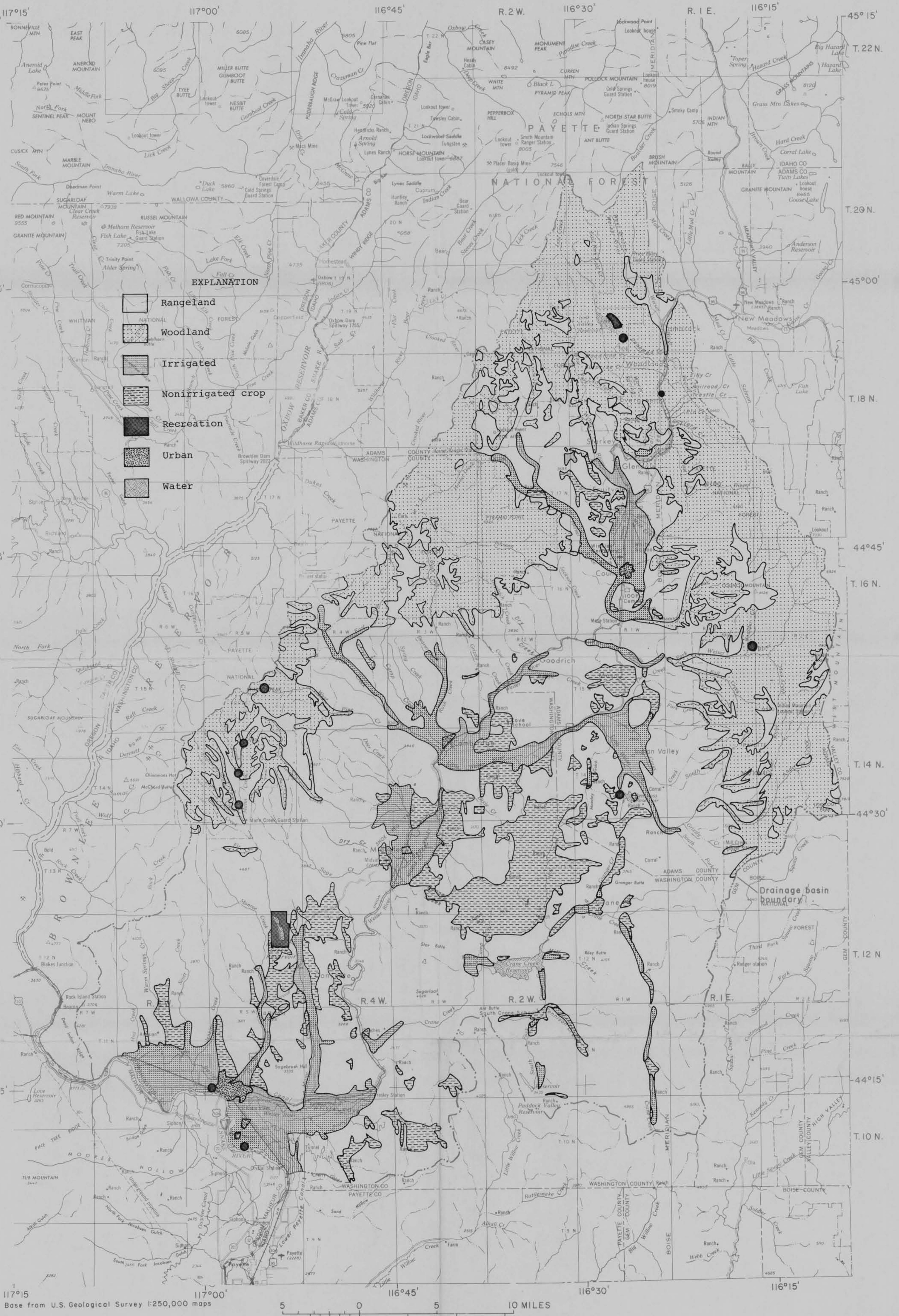

FIGURE 30.--LAND USE IN THE WEISER RIVER BASIN

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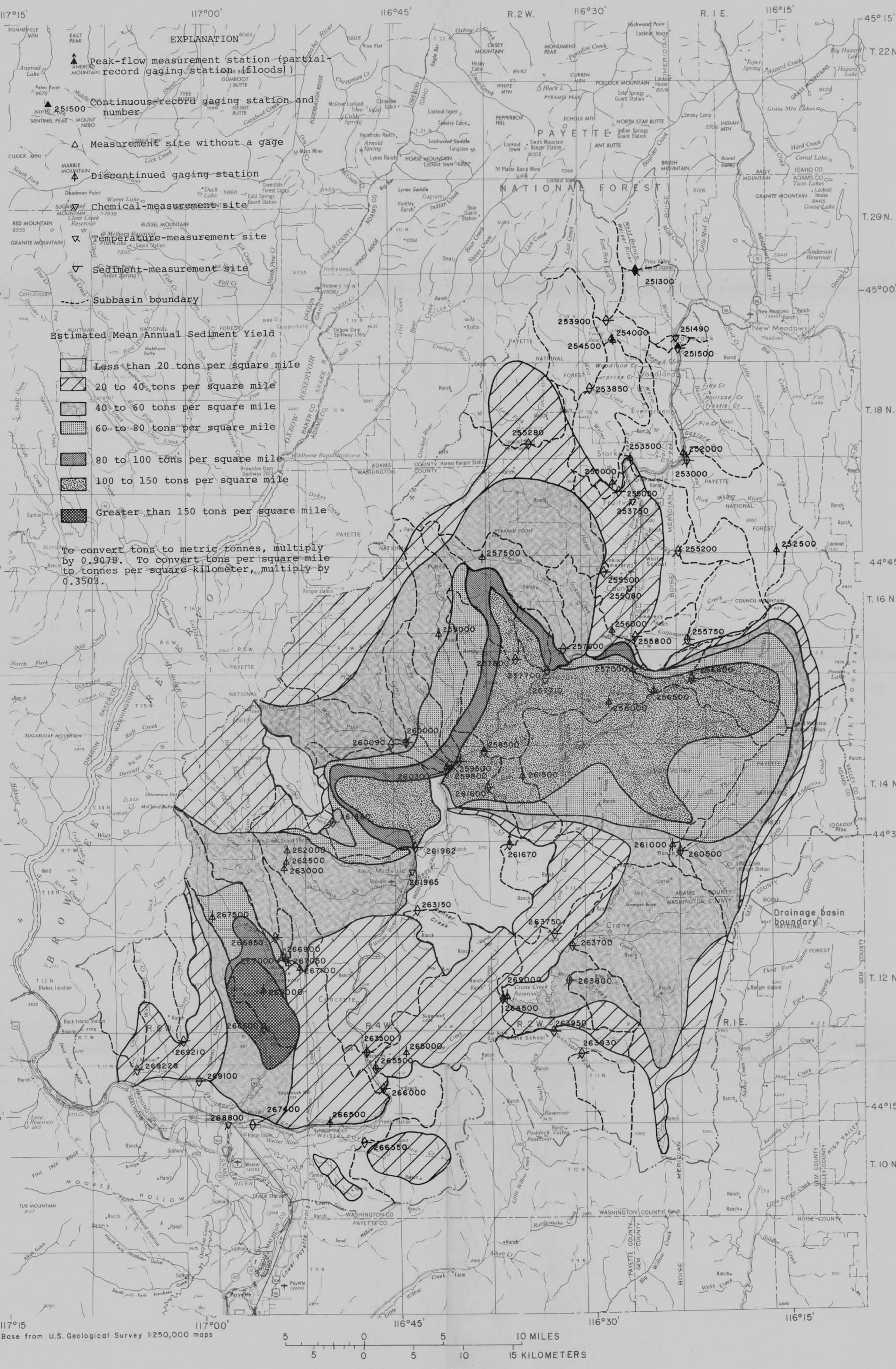

FIGURE 33.--ESTIMATED MEAN ANNUAL SUSPENDED SEDIMENT YIELD FOR THE WEISER RIVER BASIN